State Ownership and Transparency in Foreign Direct Investment: Loose-Lipped Leviathan?

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Abstract

We contribute to literature on state-owned multinationals by examining an understudied element of MNE strategy - transparency. Drawing insight from accounting, finance and political science, we develop theory and hypotheses regarding ownership effects on FDI disclosure. We argue that transparency of *outward FDI* depends on both state ownership and home- and host-country institutions. We also posit that host governments harness their SOEs to exploit information disclosed by foreign MNEs, discouraging *inward FDI* transparency. We test our hypotheses using a unique transaction-level database from the global petroleum industry. Analyzing a sample of 965 investment disclosures across 81 developing and developed countries, we find state ownership reduces MNE transparency; SOEs are less sensitive to host-country political risk than private firms; SOEs from better-governed countries are more transparent; and regardless of ownership, foreign MNEs are more opaque when investing in the presence of a host-country SOE.

INTRODUCTION

State-owned enterprises (SOEs), once domestic champions, are now some of the world's largest firms and most active multinational investors. UNCTAD (2011) data show that while SOEs make up less than 1% of all MNEs in operation, they represent more than 11% of global FDI flows. SOEs account for 22% of the top 100 global publicly-listed firms, and about 15% of the Forbes Global 2000 ranking (OECD, 2016); these figures underestimate their position as many are unlisted.

The emergence of SOEs as global players has inspired new literature on state-sponsored foreign direct investment (FDI), which focuses on when, how and why SOE internationalization strategies differ from those of private enterprises (POEs; Choudhury & Khanna, 2014) and how SOEs manage institutional pressures abroad (Meyer, Ding, Li & Zhang, 2014). At the same time, SOEs' ascendance has raised concerns about accountability, documented in surveys of managers and policymakers (Sultan Balbuena, 2016). Specifics include corruption and political favoritism (Ferguson, Lam & Lee, 2002; Nguyen & van Dijk, 2012), unfair competition due to home-government preferential treatment (Christiansen & Kim, 2014), obscuring of political rent-seeking (Besley & Prat, 2006), and threats to national security (Hale, 2014).

These concerns are heightened by perceptions that SOEs are not transparent about their finances, operations, and objectives (Liu & Woywode, 2013; OECD, 2016). For example, China subsidizes outward FDI under its "go global" resource-security policy (Luo, Xue, & Han, 2010), yet Chinese SOE managers have claimed their foreign investments are purely commercial.[1] Such perceptions foster distrust, and have generated host-country opposition to state-sponsored FDI (Meyer et al., 2014). Several countries restrict foreign SOEs' direct investment, while others subject it to greater scrutiny in the review

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[1] According to the CEO of Chinese SOE Sinopec, "If you look into our country, you see that government and business are totally separate... The government is the largest shareholder, but they act similarly to any public shareholder. They don't get involved with business decisions and daily operations" (*Petroleum Intelligence Weekly*, 2012).

process than FDI by private MNEs, and include stringent transparency conditions (Hale, 2014; Shima, 2015).[2]

This paper examines state-owned firms' strategic use of transparency – voluntary disclosure of firm-specific, value-relevant information (Verrecchia, 2001) . Our main research question addresses the influence of state ownership on decisions to disclose information on outward FDI. We also ask whether the presence of a host-country SOE affects the transparency of inward FDI by foreign MNEs. We bring together work on state ownership with two disparate literatures on transparency - corporate (from accounting and finance) and public-sector (from political economy). Our approach builds upon the traditional agency framework used to examine private-firm transparency (Meek & Thomas, 2004) with theoretical innovations from public-choice (Villalonga, 2000), political risk (Vernon, 1970; Kobrin, 1979), and government-decision making models (Makhija, 1993).

The corporate transparency literature views managerial disclosure through a shareholder lens. In contrast, the public-sector transparency literature focuses on causes and consequences of information revelation by government officials. We argue that SOE managers must consider both perspectives. In addition to market pressures, state-owned firms are influenced by many of the incentives that drive politicians, who serve a principal role in SOEs.

Our research resolves ambiguous predictions on SOE transparency in the literature. The articles on SOE accountability cited above assume that these firms are opaque. In contrast, Meyer et al. (2014:2) posit that state-owned MNEs will "will work extra hard to attain local legitimacy", implying greater transparency. Indeed, while systematic evidence on state-owned MNE transparency is lacking, examples

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[2] For example, Canada's 2012 guidelines, "Statement Regarding Investment by Foreign State-Owned Enterprises" under the Investment Canada Act, state "[Foreign SOE] Investors will also need to demonstrate their strong commitment to transparent and commercial operations," Investment Canada Act; Online access at https://www.ic.gc.ca/eic/site/ica-lic.nsf/eng/lk00064.html

suggest use of disclosure to try to allay host-country concerns.[3] According to a Transparency International (2014) report ranking the world's largest listed companies on transparency, two of the top three most transparent companies had some government ownership. Some state-owned multinationals have been lauded for their transparent relations with external stakeholders (OECD, 2011).

Further, empirical research on domestic SOEs does not support suspicions about transparency. Comparisons with private firms are limited to the Chinese context, and yield mixed results. Ding, Zhang, & Zhang (2007) show that Chinese SOEs are less likely than private firms to inflate reported earnings. Wang, Sewon & Claiborne (2008) find that voluntary disclosure increases with the level of state ownership. Choi, Sami & Zhou (2010) find that SOEs were less transparent in the 1990s, but differences between state-owned and private firms disappeared once Chinese institutions improved. These domestic comparisons may tell us little about MNEs, however, as transparency is related to multinationality (Cannizzaro and Weiner, 2015).

Our focus is on voluntary FDI disclosure, a phenomenon we term *investment transparency.* Drawing on the accounting literature (Leuz and Wysocki, 2016), we operationalize investment transparency as an MNE's decision to voluntarily disclose, or not to disclose, value-relevant information in press releases announcing foreign investments.[4] We classify investment transparency into three categories – minimal, partial and full – based upon the details disclosed (discussed further in our empirical section below).

We develop and test hypotheses in a setting where transparency has been of widespread concern among host- and home-country governments: the global petroleum industry. Our focus is on firms' FDI

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[3] When state-owned China National Offshore Oil Company bid for US firm Unocal, its press release revealed operational plans that the counterbidder, US MNE Chevron, did not, including that it would "seek to retain substantially all Unocal employees, including those in the U.S" and to "endeavor to persuade members of Unocal's executive and operational management to join the management team of the combined company." (CNOOC, 2005).

[4] The accounting literature determines information to be value relevant if it is important to investors in assessing the fair market value of the firm. See Barth, Beaver & Landsman (2001) for a summary of the literature.

transparency strategies in acquisitions of petroleum reserves. We use a unique database of announcements to construct a sample of 965 reserve investments spanning 11 years and 81 countries. We employ matching techniques to account for potential endogeneity of state ownership, facilitating comparison of investment transparency between private firms and SOEs.

Comparing transparency in state-owned and private MNEs at the investment- (rather than firm- or country-) level has several advantages. First, MNEs typically have multiple investment projects, each with its own characteristics. FDI drivers may differ for each investment an MNE makes, and are thus difficult to measure and interpret at the firm level. Second, prior empirical work examines corporate financial statements. Managerial decisions about voluntary aspects of financial-statement reporting are made after performance is known, and hence are not independent of the information reported, referred to in the disclosure literature as the "separation problem".[5] In contrast, investment announcements are pre-performance indicators of transparency, facilitating clean tests of ownership effects on decisions about what to disclose.

Third, focusing on voluntary investment disclosures makes possible comparisons between private and state-owned MNEs in a way that regulated financial reporting cannot. State-owned MNEs are often not subject to international reporting standards (e.g., GAAP, IFRS). As a result, reliance on financial statements as a medium of disclosure excludes many SOEs. Regulatory reporting mandates also vary across countries. In contrast, the investment disclosures we examine are purely voluntary, allowing us to avoid ownership selection bias in examining managerial decisions about firm transparency.

Finally, voluntary disclosure should be of interest to strategy scholars more generally, because it is a purely managerial decision. In contrast, outcomes examined in the strategy literature reflect both managerial choices and reactions by competitors, suppliers, customers, etc. (surveyed in Martin and Li,

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[5] Leuz and Wysocki (2016: 21) point out that "separating a firm's reporting from the underlying economics …is very difficult…The separation problem has plagued all [financial-statement] measures of reporting…"

2015). Likewise, strategic decisions such as entry mode reflect availability of other firms with which to partner or acquire.

Our findings show that investments by private firms and hybrid SOEs (those with mixed public and private ownership) are more transparent than those by fully-state-owned firms, suggesting a detrimental effect of state ownership on transparency. However, we also find that SOEs from better-governed countries tend to behave more transparently, and that SOEs are less sensitive to host-country political risk than private firms. Thus, the effect of state ownership on transparency is contingent on both home- and host-country institutional environments, consistent with our theory. Lastly, we show that inward FDI is significantly more opaque in the presence of a host-country SOE.

LITERATURE REVIEW – TRANSPARENCY IN INTERNATIONAL BUSINESS

Concerns surrounding the global expansion of foreign direct investment have long fueled scholarly interest in the accountability of multinational enterprises. For example, scholars have noted that MNEs may exploit borders to arbitrage judicial systems and avoid legal responsibilities (Blumberg, 2000; Stiglitz, 2008), and manipulate transfer prices to shuffle profits among subsidiaries to avoid taxation (Eden, 2012). Among these concerns is the opacity of MNEs regarding their investments abroad (Meek & Thomas, 2004).

The study of transparency has a long history in the international business (IB) literature; however, both theoretical and empirical research has traditionally focused on private firms (Bruton, Peng, Ahlstrom, Stan & Xu, 2015). Articles divide into those that examine the antecedents of transparency, and those that examine effects. Meek, Roberts & Gray (1995) examine drivers of voluntary disclosure of strategic, financial, and non-financial information between multinationals based in the United States, the United Kingdom and continental Europe. They find initial evidence for the importance of firm and industry characteristics, cross-listing on foreign exchanges, and geography on the MNE's propensity to disclose.

Disclosure is also related to institutional pressures MNEs face. Examining management earnings forecasts from foreign firms cross-listed in the United States, Shi, Magnan & Kim (2012) find that firms from institutionally weak countries are less likely to disclose than those from countries with strong institutions. Cumming and Walz (2010) find that private-equity funds investing in countries with lax accounting standards or weak rule of law are more likely to inflate the value of their investments. Simultaneously analyzing home- and host-country institutions, Cannizzaro & Weiner (2015) find that political and societal pressures are more important to FDI transparency than the agency-theoretic drivers identified in the accounting literature, such as need for external finance.

Articles focusing on the effects of transparency date back to Choi (1974), who showed voluntary disclosure to be an important factor for MNE access to international capital markets. Hope, Kang, Thomas & Vasvari (2008) find a positive association between increased transparency in international operations and the valuation of foreign earnings using a difference-in-differences approach[6]. Durnev, Errunza and Molchanov (2009) find that industry-level disclosure is lower and investment less efficient in countries with higher expropriation risk. Shi, Kim & Magnan (2014) study the voluntary management earnings forecasts of foreign firms that cross-list in the United States. Examining a sample American Depository Receipt (ADR) issuers, they show that more transparent cross-listings exhibit a higher valuation (measured by Tobin's Q), and that this effect is stronger for issuers from home countries with weak legal institutions.

HYPOTHESIS DEVELOPMENT

Effects of Ownership on Outward FDI Transparency

We view the effects of private and state ownership on the transparency of MNEs' outward investments through the theoretical lenses of agency and public choice (Villalonga, 2000). From an

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[6] Specifically, they examine changes in geography-specific disclosures in US MNEs following the adoption of SFAS 131 which introduced rule changes that encourage such disclosures.

agency perspective, private firm owners' limited ability to monitor managerial behavior and potential conflicts of interest (Jensen & Meckling, 1976) leads them to reduce the price at which they are willing to purchase securities (Merton, 1987). This compensates for the risk of opportunism that arises from managers' information advantage, raising firms' cost of capital. Managers assuage investor concerns through increased disclosure, thus reducing capital costs (Healy and Palepu, 2001)[7].

State-owned firms face different challenges addressing conflicts of interest between owners and management. Whereas equity markets reward managerial transparency with a lower cost of capital, market discipline may be weak or absent in the case of SOEs (Megginson, 2005). For example, their accounting systems are typically below internationally–accepted accounting standards such as IFRS or US GAAP (OECD, 2011). Further, they commonly face soft budget constraints due to implicit or explicit government guarantees (Kornai, 1986). Such guarantees facilitate access to cheap capital, potentially reducing returns to transparency.

Policy makers are themselves agents of citizens, creating an additional level of agency conflicts (Cuervo-Cazurra, Inkpen, Musacchio & Ramaswamy, 2014). While transparency may benefit citizens as the ultimate owners of SOEs, policy makers are incentivized to direct firms' disclosures in pursuit of objectives such as maximizing employment, managing industrial policy, bureaucratic rent-seeking, politicians' private benefits, and political cronyism (Shleifer, 1998; Pargendler, Musacchio & Lazzarini, 2013). Transparency facilitates the attribution of political outcomes to the choices of specific policy makers, providing accountability. Disclosure both aids constituents in assessing the costs and benefits of particular policies, and increases their ability to detect political opportunism (Alt & Lassen, 2006).

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[7] Thus voluntary disclosure can be thought of as "supply of transparency," and our hypotheses as concerning factors affecting supply and demand for transparency. In the accounting literature, Kothari (2000) and Cannizzaro and Weiner (2015) discuss transparency supply and demand in general and in the petroleum industry respectively.

These perspectives suggest that policy makers may incentivize managers to suppress information if disclosure would undermine political dealings, or reveal political corruption or cronyism. Bushman, Piotroski & Smith (2004) provide indirect country-level evidence consistent with this effect, showing that a higher prevalence of state ownership in the economy is negatively related to the quality of disclosure standards and timeliness of disclosures within a country.

Due to both the incentives for weak governance suggested by the agency perspective, and political motivations for suppressing information suggested by the public-choice perspective, we do not expect wholly-owned SOEs to be as transparent as private firms. Formally,

H1A: Outward FDI by private firms will be more transparent than outward FDI by wholly state-owned firms.

Increasingly, states have shifted from wholly-owned SOEs towards mixed ownership in which "the government works hand in hand with domestic and foreign private investors" (Musacchio, Lazzarini & Aguilera, 2015: 115). These hybrid, state-invested, or mixed ownership enterprises (MOEs), are prevalent in emerging-market economies; in 2010, listed MOEs accounted for approximately 70% of stock-market capitalization in China, 40% in Russia, 30% in India, and 35% in Brazil (Musacchio, Lazzarini & Aguilera, 2015: 117). Research on MOEs is limited (Bruton et al, 2015); however, empirical evidence shows that mixed ownership with stock-exchange listing is positively related to efficiency and performance (Gupta, 2005; Megginson, 2005).

Mixed ownership also necessitates the adoption of more stringent reporting standards such as IFRS, and allows firms to provide managers with pay-for-performance incentives (Pargendler et al., 2013). If these mandatory financial statement reporting norms spill over into voluntary disclosure of FDI transactions, we would expect MOEs to be more transparent than wholly-owned SOEs. Formally,

H1B: Outward FDI by mixed-ownership firms will be more transparent than outward FDI by wholly state-owned firms.

We follow Musacchio, Lazzarini & Aguilera (2015) and distinguish two mixed-ownership structures: majority-owned MOEs (50% or higher government ownership), and minority-owned MOEs (less than 50% government ownership).[8] In majority-owned MOEs, the state exerts significant influence over firm decisions. However, board members elected to represent private owners' interests provide a monitoring mechanism to discourage non-value-maximizing activities.

In MOEs where the state is a minority investor, the government may relinquish control to private investors, further insulating management from political interference, and creating incentives mirroring those of private firms (Fan, Wong & Zhang, 2012; Inoue, Lazzarini & Musacchio, 2013). This suggests transparency is decreasing in the share of government ownership of MOEs.

H1C: Outward FDI by minority-state-owned firms will be more transparent than outward FDI by majority-state-owned firms.

There are several reasons hypothesis H1C may not hold, however. In widely-held firms, a significant minority stake is often sufficient for control. Moreover, despite its minority stake, government can maintain veto power over major corporate decisions through use of "Golden Shares" (Musacchio, Lazzarini & Aguilera, 2015). Finally, majority- and minority-state-owned MNEs may be viewed similarly by both host governments (Shi, Hoskisson & Zhang, 2016) and home governments. In the absence of empirical studies and clear predictions from theory, our comparison of majority- and minority-state ownership may be of wider interest.[9]

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[8] We employ the 10% threshold used in official statistics and the literature on corporate governance, considering firms with under 10 percent state ownership to be private (e.g., UNCTAD, 2011).

[9] We thank an anonymous reviewer for suggesting we discuss the role of government ownership share and its implications for transparency.

Home-Country Determinants

The insights from the public-choice literature discussed above suggest political motivations influence SOE behavior. But does this necessarily discourage transparency? State-owned firms face many of the same pressures that drive politicians to be transparent, as politicians serve a principal role in SOEs. Citizens and civil society demand information from politicians, as transparency allows stakeholders to monitor their actions. As Alt and Lassen (2006: 101) note, "The ability of observers, and ultimately voters, to separate politicians' opportunistic policy choices from ones with other motivations… depends crucially on the nature of voters' decision-making process and the information available to them".

Supply of government transparency is highest in countries where politicians are sensitive to constituent demands (Hollyer, Rosendorff & Vreeland, 2011). Strong democratic institutions increase electoral accountability, incentivizing politicians to offer more precise information to voters. Empirical research has shown that the quality of a country's institutions is positively related to a government's fiscal, economic, and policy transparency (Wehner & Renzio, 2013; Rosendorff & Vreeland, 2006; Hollyer, Rosendorff & Vreeland, 2011).

SOEs can help governments reduce information available to citizens by providing a means of keeping corrupt and controversial transactions off the books, and a channel for revenue collection and spending outside a country's official budget (Ross, 2011). An example is 1990s Iraq, where a majority of the government's revenues ran through the SOE's non-public budget (Alnasrawi, 1994). A similar situation existed at Angola's state-owned oil company Sonangol in the late 1980s. Loans collateralized with oil were used to fund arms purchases and covert operations to buttress the power of the president and ruling party (Amundsen, 2014).

In countries with strong governance institutions, where citizens' demand for openness is greatest, we expect politicians to assuage public concerns over the potential for government malfeasance by

pressuring SOE managers to provide greater access to information on firm investments. Thus, we expect SOEs to disclose more information. Formally,

H2: The negative effect of state ownership on the transparency of outward FDI is moderated by home-country institutional quality. The better are home-country institutions, the weaker will be the relationship between state ownership and outward FDI transparency.

Host-Country Determinants

Regardless of ownership, MNEs may encounter risks such as threats of expropriation (Vernon, 1970; Kobrin, 1979) and corruption (Shleifer & Vishny, 1993) when they venture abroad. These risks are exacerbated in industries where rents comprise a high proportion of product value, and where asset ownership and exploitation are subject to significant state involvement (Jandhyala and Weiner, 2014).

Political risk stems in part from the potential for governments to intervene in multinational investment. The availability of relevant information "plays a pivotal role in *motivating* intervention" (Makhija, 1993: 549, emphasis in original). MNEs have firm-specific information advantages stemming from private information developed in their global operations (Kingsley & Graham, 2017). For example, MNEs in the petroleum industry possess a superior understanding of geology, production schedules, technology and costs (Tordo, 2011), and host governments typically have less information on asset values than MNEs (Humphreys, Sachs, and Stiglitz, 2007). By avoiding disclosure regarding the value of potentially-expropriable assets, MNEs discourage opportunistic state behavior (Durnev & Guriev, 2011; Cannizzaro & Weiner, 2015). Political hazards thus incentivize MNE opacity.

State ownership alters MNE risk tolerance towards host-country political hazards (Cui & Jiang, 2012; Knutsen, Rygh & Hveem, 2011). SOE managers have less to fear from foreign government intervention, as they are neither exclusively profit driven, nor bound by hard budget constraints (Megginson, 2005). Whereas a POE manager may feel the costs of disclosure outweigh the benefits when expropriation risk is high, and thus act opaquely, soft budget constraints reduce SOE sensitivity to these costs. Thus, SOE managers are expected to have a higher tolerance for political risk.

By virtue of its inherent closeness with the government, state ownership also provides capabilities for managing political hazards abroad. Home country governments can leverage diplomatic channels to improve access to host-country information to support outward FDI. Governments frequently give their SOEs preferential access to such information (Sauvant, Economou, Gal, Lim & Wilinski, 2014).

Further, diplomatic relationships such as past inter-governmental cooperation, military or foreign aid, or the threat of reprisal (e.g., sanctions or the withdrawal of aid) give the home country a means of mitigating political risk that private MNEs lack. SOEs may have preferential access to diplomatic protection, as potential expropriation of state assets could be perceived as hostility towards the state itself. Duanmu (2014) finds evidence of this with respect to FDI entry decisions, showing Chinese firm internationalization is less sensitive to political risk when the host country has a similar UN voting record to China. In contrast, using public-sector resources to defend private business may be perceived as favoritism (Lipson, 1985). This suggests that SOE investment transparency should be less sensitive to political risk than that of private firms.

Thus, we hypothesize that the negative effect of state ownership will be reduced for investments in politically risky environments. Formally,

H3: The negative effect of state ownership on the transparency of outward FDI is moderated by host-country political risk. The greater is host-country political risk, the weaker is the relationship.

Effects of State Ownership on Inward FDI Transparency

The IB literature treats the relationship between state and enterprise as unidirectional, examining the costs of benefits of state ownership to firms. In this section, we explore whether SOEs provide information benefits to the state, and ask whether the presence of a host-country SOE (majority- or minority-owned) can influence the transparency of inward FDI.

MNEs investing in countries with SOEs may reduce transparency, for two reasons. First, a host SOE may be able to exploit information to compete against the MNE. (Meek, Roberts & Gray, 1995; Verrecchia, 2001). Competition with foreign SOEs was often cited by oil-industry groups opposing disclosures mandated by the US Dodd–Frank Wall Street Reform and Consumer Protection Act.

Second, these countries likely have greater capacity to infer value-relevant information from disclosures. As discussed above, information plays a pivotal role in motivating intervention. Specifically, government action is contingent upon information "which characterizes the activities of the foreign firm or industry and factors related to the firm's environment. These may include aspects reflecting financial investment, production, and pricing behavior of these firms" (Makhija, 1993; 533).

Government decision makers are at a disadvantage, as MNEs are superior at acquiring and interpreting private investment-specific information. Indeed, an extensive literature in regulatory economics studies relationships between governments and firms under incomplete information. A primary conclusion of this literature is that a host-country SOE can play an "*informational role* in that the public firm is able to make more precise inferences about industry costs" (Garvie & Ware, 1996; 358, emphasis in original).

There are several examples of petroleum SOEs formed expressly to provide host-country governments an information advantage (Grayson, 1981). Norway's Ministry of Petroleum and Energy highlighted "learning the ropes" as a major motivation behind the creation of Statoil in 1972. Similarly, Malaysia's Petronas was created in part as a response to the government's difficulties in obtaining information on new discoveries by private oil companies (Tordo, 2011). Another example is Petro-Canada, which was established as the Canadian petroleum SOE in part to provide a "window on the industry" where foreign MNEs owned over 90% of production (Garvie and Ware, 1996: 363).

A host SOE reduces state information disadvantage through its capability to assess the value of foreign investment. Thus, we expect that MNE managers provide less information when host-country

governments are able to exploit the informational advantages of an SOE. Both information advantages and proprietary costs of SOE competition suggest a negative direct effect of host-country SOE presence on transparency. Formally,

H4A: Inward FDI will be less transparent in host countries that possess SOEs than in those that do not.

To disentangle the information-advantage and SOE-competition effects, we exploit variation in investment complexity. Technologically-complex projects are more difficult both to operate and value. For states without an SOE, the added difficulty in assessing the value of complex investments may limit government decision-maker action against foreign MNEs. On the other hand, states exploiting the information advantage of an SOE are more likely to possess the capabilities necessary to evaluate such investments. Thus, the information-advantage hypothesis predicts the negative effect of host-country SOE presence on transparency to be stronger for more complex investments.

In contrast, the SOE-competition hypothesis predicts the negative effect of host-SOE presence will attenuate as complexity increases. Host-country SOEs are likely to compete less effectively as investment complexity increases, due to deficits in technological and human capital relative to private firms (Tordo, 2011). Thus, revealing information about complex investments should be perceived as less risky by the investing MNE. To separate these underlying mechanisms, we test the following competing hypotheses:

H4B (Information-Advantage Hypothesis): The negative effect of host-SOE presence on inward-FDI transparency is stronger when the investment is more complex.

H4B' (SOE-Competition Hypothesis): The negative effect of host-SOE presence on inward-FDI transparency is weaker when the investment is more complex.

EMPIRICAL SETTING, SAMPLE & METHODOLOGY

State Ownership and the Petroleum Sector

Petroleum is an ideal setting for examining SOEs. The ten largest firms ranked by oil reserves are state-owned; of the 50 largest by operations, 29 are state-owned, including 11 MOEs. (*Petroleum Intelligence Weekly*, 2016).[10] Petroleum is the largest sector for FDI undertaken by state-owned firms, making up approximately 50% of total outward flows by SOEs in 2010 (Stevens, Kooroshy, Lahn & Lee, 2013).

The petroleum sector is also well-suited for empirical comparisons of multinational transparency. Prior research in IB has found that transparency concerns are more severe for natural resource firms (Durnev & Guriev, 2011; Akamah, Hope & Thomas, 2017). The wide variety of national environments in which MNEs operate allows us to examine political institutions as potential driving patterns of investment disclosure. The industry is characterized by substantial political risk (Kobrin 1984; Click & Weiner, 2010), encompassing corruption (McPherson and MacSearraigh, 2007), legal disputes between MNEs and host governments (Franck, 2007), and nationalization (Guriev, Kolotilin & Sonin, 2011). High levels of rent provide managerial incentives for withholding information that might attract government attention (Durnev & Guriev, 2011; Cannizzaro & Weiner, 2015)[11]. Concerns over SOE transparency were behind industry objections to US SEC disclosure mandates (Hunt, 2011). Home-country variation is also substantial; SOEs are found in both oil-exporting and –importing countries at all income levels. Examples include Norway, Italy, Brazil, China, and Russia.

Moreover, indirect evidence is consistent with petroleum SOEs acting as agents of their home governments. For example, China's "go global" policy supports its MNEs' outward FDI by specifically targeted natural resources (see footnote 1 above). Similarly, SOEs in Britain, France, Italy, and Japan were created to pursue policy objectives of owning and controlling petroleum resources abroad.

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[10] Figures are for 2015; for a list see http://www2.energyintel.com/l/19202/2016-12-01/bfx33f
[11] For further discussion of the industry setting, see Inkpen & Moffett (2011) and Healy & Serafeim (2013).

We examine individual firm investments in petroleum reserves, underground reservoirs known to contain oil and gas ("fields") extractable economically at current prices and costs. As a firm's inventory of future production (and hence a predictor of future earnings), reserves are central to firm valuation and ability to borrow (Arnott, 2004; Chung, Ghicas, & Pastena, 1993; Muñoz, 2009; Osmundsen, 2010). The accounting literature demonstrates that reserves are value-relevant (Misund, Osmundsen & Asche, 2005; Taylor, Richardson, Tower, & Hancock, 2012).

Reserves provide several advantages for disclosure research. They are traded in decentralized markets with prices negotiated privately, much like other real assets such as office buildings, land, companies, and commercial aircraft. Paramount to our study, announcements of reserve investments are voluntary and convey transaction-specific information unavailable elsewhere. For example, the size of the reserve reported reflects the buyer's proprietary estimates.

Neither does post-acquisition regulatory reporting serve as a substitute; reserve reporting requirements are aggregate or country-specific, not investment-specific. Geographic and temporal aggregation obscures firm's proprietary valuations of specific investments. Investment-level valuation is possible only if managers voluntarily choose to reveal both their estimate of reserve size and price paid at the time of each acquisition.

Heterogeneity of private information is commonly identified as a potential confounding factor in disclosure research (Ellis, Fee & Thomas, 2012; Chen, Cheng, Gong & Tan, 2014). Some firms may be less transparent than others for the simple reason that they have little private information to reveal, or that their private information is of little value. Reserve disclosures largely alleviate informational-heterogeneity concerns. While size estimates are proprietary and expensive to obtain, reserves are largely homogeneous except for cost differences (for which we control). This homogeneity facilitates outsiders' investment valuation and market comparison if reserve size is disclosed. Further, and critical to research on private and state-owned MNEs, reserves are similar and comparable across transactions and firms.

Another common concern in FDI studies is endogeneity of host-country location decisions. Selection could bias results if the host-country institutional factors also drive investment-location choice. Our industry setting mitigates these concerns for two reasons. First, reserves are location-specific assets. Unlike strategic decisions regarding greenfield investment or corporate acquisitions, firms do not chose which countries are endowed with oil. Second, despite political risk, petroleum MNEs are "willing to work in almost any country in the world" (Hallmark & Whited, 2001). Due to the geographic specificity of reserves, managing the risk of location choice is a market decision that is factored into investment pricing (Click & Weiner, 2010).

Sample Construction

We test our hypotheses using a sample of reserve transactions taken from a database of announcements through corporate press releases.[12] The announcements are compiled by IHS Herold, an advisory firm that conducts independent research and collects financial and operational information on the global petroleum industry.[13] IHS Herold reports which counterparty discloses information for each investment, enabling us to relate disclosure to the firm selecting what information to report. In contrast, databases widely used in investment research (e.g., SDC Platinum and ORBIS) provide little to no information on their sources.

Our sample is comprised of 965 buyer-announced cross-border reserve transactions. These transactions cover the years 2000 through 2011 across 81 countries (see online appendix). We obtain the information source (buyer or seller), announcement date, counterparty names, home countries, asset

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[12] Research in IB based on corporate press releases is limited; an example is Guillamón-Saorín and Sousa (2014), who compare disclosure of earnings in press releases by British and Spanish firms.

[13] See https://www.ihs.com/products/energy-company-transaction-research.html. Other companies providing this type of information and analysis include Derrick Petroleum Services http://www.1derrick.com/databases/ and GlobalData, http://energy.globaldata.com/research-areas/oil-and-gas/deals-analytics.

location, asset reserve type and complexity, value (if disclosed), and reserve size (if disclosed) for each transaction.

Dependent Variable – Investment Transparency

We examine whether firms disclose two value-relevant attributes about each investment – the price and the volume of the reserve purchased. Measures of transparency based on disclosure quantity, rather than quality, can be found in the literature in political science[14] and accounting.[15] We go beyond this literature's item-counting approach in incorporating an informativeness dimension; disclosing price and quantity allows investors and analysts to compare investment terms with market benchmarks, whereas disclosure of either one but not the other does not. This is especially relevant in light of concerns about SOEs discussed above; deviation might flag home-government preferential treatment or national-security objectives.

For example, according to Kerr (2007), the MOE Abu Dhabi National Energy Company (TAQA) bought Northrock Resources, a company with petroleum reserves in Canada for US$2 billion. The reserve was estimated to have 142 million barrels of oil and gas; thus, TAQA valued the reserve at US$14.08 per barrel. Because both price and reserve quantity were reported, analysts could benchmark this valuation against other reserve acquisitions.

As noted above, we classify the degree of investment transparency for a given transaction by whether minimal information (transaction announced, but neither price nor quantity disclosed), partial information (exclusively price or quantity), or full information (both price and quantity) is disclosed when an investment is announced. In the analyses that follow, we code a categorical, trichotomous variable

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[14] Hollyer, Rosendorff & Freeland (2011) use number of data items reported at country level in the World Development Index to measure government transparency.
[15] For example, the S&P disclosure score and the CIFAR index (Leuz and Wysocki, 2016).

Investment Transparency. We model the choice to disclose using multinomial logistic regression (Greene, 2000).

Explanatory Variables

To test Hypotheses 1A, 1B, and 1C, we employ dummy variables for level of state ownership. If the buyer is a privately owned enterprise, the dummy Buyer Private takes a value of 1. Buyer Minority-MOE takes a value of 1 if the buyer is a mixed-ownership enterprise where the state is a minority investor. Buyer Majority-MOE takes a value of 1 if the buyer is a mixed-ownership enterprise where the state is the majority owner. Buyer Wholly-owned SOE takes a value of 1 if the buyer is 100% state-owned.

Hypotheses 2 & 3 address home-country factors moderating the effect of state ownership. To model these interactions, we create a new Buyer State Ownership dummy. To understand how these interactions affect different types of SOEs, we vary the threshold of state-ownership examined in each model (described below).[16] We collected ownership data from company websites, regulatory information accessed via the Capital IQ database, and *Petroleum Intelligence Weekly*.

To measure home-country institutional quality, we use the World Governance Indicators (WGI) from the World Bank. The WGI are based on surveys of business leaders, citizens and local experts. These indicators assess "the traditions and institutions by which authority in a country is exercised" on six dimensions: Voice and Accountability, Political Stability and Absence of Violence, Government Effectiveness, Regulatory Quality, Rule of Law, and Control of Corruption (Kaufmann, Kraay & Mastruzzi, 2012). The indicators are highly correlated; we follow Slangen and Beugelsdijk (2010) and Roy (2012), and construct the variable Home Country Governance as a sum of these indicators[17].

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[16] We thank our anonymous reviewers for this suggestion.
[17] An alternative approach is principal-components analysis (PCA), although research suggests the six WGI effectively measure the same concept (Langbein and Knack, 2008). For robustness, we also used PCA to extract the

We measure host country risk through political constraints on the host government (Holburn & Zelner, 2010) using the POLCONV index (Henisz, 2006), which is designed to capture the political structures within a country that support a government's ability to make credible commitments. Governments facing weaker constraints are freer to pursue predatory actions, and thus pose a greater risk to firms that disclose investment information. Host Country Political Risk = 1- POLCONV, which results in a variable ranging from 0 to 1 where higher values are indicative of greater country risk.

All institutional variables entering our regressions are for the year prior to announcement to reflect information available to managers and reduce endogeneity concerns.

To test the effect that the presence of a host-country SOE has on transparency, we code a dummy Host Country SOE Presence, which takes the value of 1 for host countries with state-owned oil companies. Information on state-owned oil companies is compiled from company and government websites, stock exchanges, industry publications, and Capital IQ[18].

We account for reserve complexity by including a dummy that indicates whether a reserve is complex or conventional. There is potentially less private information to reveal for conventional assets, whereas complex projects (e.g., deep water, heavy oil and shale reserves) require both greater capital and technological know-how to extract. A list of reserve types classified as complex is provided in Table 1.

Control Variables

We control for factors that theory suggests may influence disclosure. Reserve investments may draw less scrutiny in countries that do not depend on natural resources as a significant source of domestic wealth. We define a variable Home Country Oil Dependence as the ratio of total oil rents to GDP[19]. We

first principal component as a latent measure of Home Country Governance. The correlation between the first principal component and our summation measure is over 99%, and our results are identical across all specifications.
[18] As in footnote 8, we employ the 10% threshold used in official statistics.
[19] Prior work utilizing similar measures of dependence include Sachs & Warner (1995) and Ross (2001).

measure oil rents as the value of crude oil production at world prices less the total costs of production (World Bank, 2011). Data are from the World Bank's World Development Indicators databank.

Prior work has found that countries with legal systems originating in English common law tend to be more transparent (Shi, Magnan & Kim, 2012). We create a Home Country Common Law dummy that takes a value of 1 if the investing firm is headquartered in a common law country, and zero otherwise. Legal system classifications are obtained from La Porta, Lopez-de-Silanes & Shleifer (2008).

Extensive research finds that foreign firms cross-list in the US to bond themselves to stronger governance institutions, adopting stronger accountability standards in exchange for decreased cost of capital (Hail and Leuz, 2009).[20] We acquire listing data for our US Exchange Listing dummy from several sources, including company and exchange websites, and from regulatory filings accessed through the Capital IQ database.

Lastly, we control for the price of oil, although the directionality of the sign is unclear. On one hand, high oil prices are associated with greater oil-company profitability and better upstream investment opportunities, and hence more disclosure (Hossain et al., 2005). On the other hand, high oil prices increase rents and political risk (Click & Weiner 2010; Guriev et al 2011), potentially reducing disclosure. We construct our *Oil Price* variable as the log value of the 12-month petroleum (crude oil and natural gas) forward strip price on the New York Mercantile Exchange (NYMEX) for the day prior to transaction announcement. We obtain this data from the Herold database.

Table 1 provides a summary of variable definitions and data sources.

Table 1 goes about here
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[20] We thank an anonymous reviewer for this suggestion.

Sample Descriptive Statistics

Table 2 Panel A compares descriptive statistics by level of state ownership. In our sample, minimal information is disclosed in approximately 57% of transactions with wholly state-owned buyers, while only 3% disclose full information. Corresponding figures are 54% and 22% for transactions by private firms. Disclosures by mixed ownership firms more closely resemble disclosures by private firms than wholly-owned SOEs, with 51% of Minority-MOE and 46% of Majority-MOE transactions revealing minimal information. Similarly, 16% and 22% report full information, respectively. The mean value of Full Disclosure for Wholly-owned SOE transactions is significantly smaller than those reported by MOEs and POEs ($p < 0.001$), consistent with our theory.

Panel B presents correlations of key variables in the sample. Consistent with expectations, positive correlations exist between Full Disclosure and both Home Country Governance and the Buyer Private dummy. There is a negative correlation between Full Disclosure and the Buyer Wholly-owned SOE, Buyer Majority MOE and Buyer Minority MOE dummies, as well as the Host Country SOE Presence, and Complex Reserve dummies.

Table 2 goes about here

Estimating the Effect of State Ownership on Outward FDI Transparency

A challenge of capturing empirically the effects of state ownership on the transparency of outward FDI is the fact that state ownership is not exogenous. Rather, characteristics of the home country that affect the transparency of foreign investment also impact the likelihood of a particular buyer being state-owned. This potential selection bias generates error in the estimation of the average effect of state ownership on the transparency of SOEs' FDI (the average treatment effect on the treated), because the treatment is not independent of relevant covariates (i.e., firms from countries with weak institutions are more likely to be SOEs, and less likely to behave transparently).

In the absence of randomized experiments, the standard approach to ensure potential outcomes are independent of treatment is to match treated and control observations (Caliendo & Kopeinig, 2008). The goal of matching techniques is to correct imbalance in the relevant covariates; here, to resolve differences in the distributions of these covariates between the treatment (state-owned) and control (privately-owned) groups (Hainmueller, 2012). Matching methods are widely used throughout the social sciences (Dehejia & Wahba, 2002), and increasingly in IB (Reeb, Sakakibara & Mahmood, 2012).

Propensity-score matching (PSM), the prevailing method for correcting selection problems, reduces this imbalance by using a propensity score – the predicted probability of treatment. The score is used to match treatment and control observations, and to discard unmatched or unsupported observations. However, while the resulting matching estimator may reduce selection bias, balancing some covariates on the propensity score often creates substantial imbalance in other covariates. This can inflate model variance (Caliendo & Kopeinig, 2008) and has the potential to introduce more bias than it corrects (Imai, King & Stuart, 2008).

We use entropy-balancing matching (Hainmueller, 2012) to avoid these pitfalls. Unlike PSM, entropy-balancing seeks to achieve the greatest possible covariate balance while simultaneously minimizing potential imbalances that may arise in other covariates. The technique does this by employing a maximum-entropy reweighting scheme – that is, an algorithm reweights the covariates such that differences between the treatment and control group are minimized, while entropy – unique information available in the data – is maximized. The procedure's use of all available information reduces covariate imbalance without introducing additional variance or bias[21].

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[21] The entropy-balancing algorithm is essentially a linear optimization problem in which an information loss function is minimized subject to a set of balance constraints. A detailed description of entropy-balancing can be found in Hainmueller (2012).

We balance on home-country characteristics. Observations in the private-ownership group are weighted such that the distribution of these variables is similar to that of the state-ownership group. Political-science research has used entropy balancing matching to address selection issues around institutions (Tausanovitch & Warshaw, 2014), and state ownership (Truex, 2014).

Multinomial Logit Framework

As discussed in the description of our dependent variables above, managers choose between Full Disclosure, Partial Disclosure, or Minimal Disclosure. Thus, we test our hypotheses using a multinomial logit (MNL) framework. Like traditional logistic regression, the MNL model examines the likelihood of a particular outcome from a set of discrete choices (McFadden, 1974). MNL models have been successfully employed in international business (Kogut & Singh, 1988; Nadkarni & Perez, 2007; Doh, Bunyaratavej & Hahn, 2009) and strategy (Damaraju, Barney & Makhija, 2014). A detailed description of the MNL specification can be found in our online appendix.

For our hypotheses regarding outward FDI (presented in Tables 3 and 4), we address the concern regarding the potential endogeneity of buyer state ownership by adjusting our MNL Regressions using the entropy balancing approach described above[22]. In contrast, hypotheses 4A, 4B and 4B' (presented in Table 5) pertain to inward FDI, and thus do not depend on whether the investing MNE is state-owned. Hence, these tests do not suffer from the same potential endogeneity problem. Thus, unlike Tables 3 & 4, the regressions in Table 5 are unadjusted.

RESULTS

Multinomial Logit Results for Outward FDI Transparency

Direct Effects of State Ownership

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[22] For robustness, we also run analogous tests using propensity score matching (see Robustness Checks section).

For our MNL regressions, we present estimated marginal effects for each disclosure choice[23]. The marginal effect represents the change in probability of a particular disclosure choice for a unit increase in the corresponding independent variable. Table 3 displays the results for MNL regressions of Investment Transparency on state ownership for outward FDI. The columns represent the marginal effects on the probability of Minimal Disclosure, Partial Disclosure and Full Disclosure, respectively. For comparisons of state ownership, the Wholly-owned SOE dummy is omitted; thus, the coefficients for the Buyer Private Dummy test Hypothesis 1A that privately owned firms are more transparent than wholly state-owned enterprises.

Table 3 goes about here

The positive coefficients on Full Disclosure indicates full government ownership lowers the probability of full disclosure relative to private firms. Column 3 indicates that the probability of Full Disclosure increases by approximately 26% when the buyer is private, in line with our bivariate results and consistent with Hypothesis 1A.

The coefficients for the Buyer Majority MOE and Buyer Minority MOE dummies test Hypothesis 1B that state-owned enterprises with partial private ownership will be more transparent than wholly-owned SOEs. The marginal effects on the probability of Full Disclosure in Column 3 are significant for both dummies. These results correspond to a 26% increase in the probability of Full Disclosure for majority-owned MOEs, and a 23% increase for minority-owned MOEs. These results support the

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[23] For parsimony, we follow standard practice and do not present the MNL coefficients representing the change in the log-odds ratio of each disclosure choice relative to the indicated alternative for a unit increase in the independent variable. Tables including MNL coefficients are available as an online appendix.

hypothesis; MOEs behave more like private firms than wholly state-owned firms in their voluntary FDI disclosures.

We test Hypothesis 1C by comparing the marginal effects for the Buyer Minority MOE and Buyer Majority MOE variables. The results on the probability of Full Disclosure are directionally consistent and of similar magnitude and significance. Further, a simple z-test for differences in the parameters suggests that none of the marginal effects differ significantly between the Buyer Minority and Buyer Majority MOE dummies[24]. Thus, Hypothesis 1C is not supported; we do not detect any difference between disclosures by minority- and majority-owned MOEs.

Moderating Effects of Home and Host Country Institutions

Table 4 tests the interaction of state ownership and home-country institutions (Hypotheses 2 and 3) using our matched sample. We examine three thresholds of state ownership: 1) Wholly-owned (i.e. 100% state ownership); 2) Wholly-owned or Majority-owned (50% state-ownership or greater); 3) Wholly-owned, Majority-owned, or Minority-owned (i.e. any state ownership above the 10% threshold). Our dummy variable takes on a value of 1 if the degree of state ownership meets or exceeds the associated threshold. Thresholds are indicated above the columns in Table 4.

Table 4 Panel A displays the direct effects of our independent variables and controls. The first MNL Regression (results presented in columns 1-3) tests the effect of state ownership at our first threshold, wholly-owned SOEs vs. all other firms. In the second MNL Regression (results presented in columns 4-6), we shift the threshold to include firms either wholly- or majority-owned by the state. In the final MNL Regression (results presented in columns 7-9), we broaden the threshold to include any firms with state ownership.

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[24] The results of the tests (not tabulated) result in z-scores of .182, .217, and -.548 when computing the differences between minority and majority MOEs for Full, Partial and Minimal Disclosure, respectively. None are significant at the 10% level.

Panel B presents the marginal effects for our interaction terms. As the conditional probabilities of an interaction in a non-linear model are not meaningful, we follow Wiersema and Bowen (2009) and present the changes in probability associated with state ownership at varying levels of Home Country Governance[25]. We present marginal effects at the minimal value, one standard deviation below the mean, at the mean, one standard deviation above the mean, and at the maximum value of the interacted variable.[26]

Column 3 of Panel A indicates that the marginal effect of Buyer State Ownership on the probability of Full Disclosure is negative and significant when the threshold is Wholly-owned. This is consistent with our findings in Table 3. Control variables are generally consistent with theory, though display varying levels of significance.

Table 4 goes about here

Columns 1 – 3 of Table 4, Panel B present the marginal effects of MNL Regression 1, indicating the effect of being a wholly-owned SOE at varying levels of Home Country Governance and Host Country Political Risk. For values of Home Country Governance one to two standard deviations below the mean, state ownership has a significant negative effect on the probability of Full Disclosure. For higher levels of Home Country Governance, this effect becomes indistinguishable from zero (i.e., there is no longer a significant difference between the transparency of firms that are wholly state-owned, and those that are not). Our coefficients suggest that an increase in Home Country Governance from one

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[25] Following Hoetker (2007), we also plotted our interaction effects to aid interpretation. Due to space restrictions, these plots are available as an online appendix.
[26] Order statistics for our interaction variables are provided in the online appendix.

standard deviation below the mean to one standard deviation above the mean increases the probability of full disclosure by 13.5%.

We see an offsetting effect in the probability of Partial Disclosure. When Home Country Governance is weakest (equal to 0), Wholly-owned SOEs are significantly more likely to favor partial disclosure. At higher levels of Home Country Governance, this effect becomes negative, but indistinguishable from zero. These findings together suggest wholly-owned SOEs move from favoring partial disclosure to full disclosure as the quality of home country institutions increase.

Evidence of this interaction is no longer evident when we broaden the threshold to include majority-owned and minority-owned MOEs in Table 4, Columns 4 - 9. Columns 6 and 9 show that state ownership exhibits a constantly negative effect on the probability of Full Disclosure, though this effect is not significantly different from zero. The effect of state ownership on Full Disclosure for our broadest threshold (Column 9) becomes gradually less negative as Home Country Governance increases, finally turning positive at the highest levels of Home Country Governance; however, this effect is again not significantly different from zero at any level.

Thus, we find Hypothesis 2 is supported for Wholly-owned SOEs, but not when our state ownership threshold is expanded to include MOEs. This result suggests that the disciplining effect of capital market and the capacity of home country institutions to promote government accountability are substitutes, and thus redundant in MOEs. Only Wholly-owned SOEs require the constraints of strong home country governance institutions to promote transparency.

Returning to Table 4, the lower half of Panel B presents the interaction effects at varying levels of Host Country Political Risk. Both the first MNL Regression (Column 3) and the third MNL Regression (Column 9) suggest that State Ownership has a significant negative effect on the probability of Full Disclosure when Host Country Political Risk is low, which becomes less negative as Host Country Political Risk increases. Similarly, we see in Columns 2 and 8 a corresponding decrease in the likelihood

of partial disclosure. In less risky countries, state-owned firms are more likely than private firms to disclose partial information. These differences become insignificant at higher levels of political risk, suggesting the negative effect of SOE transparency relative to private firms are diminished in politically hazardous environments. Thus, Hypothesis 3 is supported in our "Wholly-owned" threshold, and our "Wholly-owned + Majority-owned + Minority-owned" threshold.

In MNL Regression 2, we do not show the same interaction effects. Rather, the effect of state ownership on Full Disclosure remains constant and negative at all levels of Host Country Political Risk. Further, the marginal effects on the minimal disclosure column suggest the probability of minimal disclosure is increasing in political risk, inconsistent with our theory. Thus, Hypothesis 3 is not supported for the "Wholly-owned + Majority-owned" threshold.

Multinomial Logit Results for Inward FDI Transparency

Direct Effects of Host Country SOE Presence

Table 5 examines whether the presence of a host-country SOE affects the transparency of inward foreign direct investment. The first MNL Regression, presented in Columns 1 -3, shows the direct effects of Host Country SOE Presence without introducing the interaction with Reserve Complexity. The marginal effect of Host Country SOE presence on the probability of Minimal, Partial, and Full Disclosure (Columns 1, 2 & 3, respectively), are consistent with our hypothesis, but insignificant. Thus, Hypothesis 4A is not supported.

 Further, the Complex Reserve Dummy demonstrates a direct effect for reserve complexity on the probability of Minimal Disclosure in Column 1: increased complexity favors less transparency. Similarly, Columns 2 & 3 show that complexity reduces the probability of Partial and Full Disclosure. This is consistent with our theory that technological complexities make investments more difficult to value.

Table 5 goes about here

Moderating Effect of Technological Complexity

While the direct effect in Hypothesis 4A is not supported, there is a significant moderating effect when we introduce the interaction with complexity in the second MNL Regression (shown in Columns 4-6) Panel B presents the marginal effects of Host Country SOE Presence at varying levels of technological complexity. The coefficients in Panel B Columns 4, 5 & 6 show that, when the Complex Reserve dummy equals zero, the effect of Host Country SOE Presence is not significant from zero for any level of Disclosure. However, the negative coefficient in Column 6 when the Complex Reserve dummy is equal to one suggests that firms investing in countries where a host-country SOE is present are significantly less likely to choose Full Disclosure when the reserve is complex. Similarly, the corresponding coefficient in Column 4 suggests that these firms are significantly more likely to choose Minimal Disclosure.

This is consistent with our SOE *Information Advantage* Hypothesis; when reserves are more complex and difficult to value, host countries benefit by exploiting their SOE's information processing capabilities. Thus, these findings provide strong support for Hypothesis 4B, and run counter to the alternate theory that host-SOE presence reduces transparency for competitive reasons (Hypothesis 4B').

ROBUSTNESS CHECKS

For robustness, we also estimated our results using propensity score matching. To overcome some of the shortcomings discussed above, we "oversample" by matching with up to three nearest neighbors with replacement. This improves the quality of the counterfactual created by reducing variance, at the expense of potentially increasing bias from poorer matches. To mitigate this potential for bias, we only allow for matches within a specific caliper (i.e., propensity scores are required to be similar within a certain predetermined range).[27]

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[27] While there is no set standard for caliper size in the propensity score literature, one standard deviation of the distribution of propensity scores is often considered conservative (Caliendo & Kopeinig, 2008). In our sample, this results in a caliper of 0.045.

For parsimony, the tabulated propensity-score matching results are available in the online appendix. Results are qualitatively consistent with the results we obtain from entropy balancing, though the significance of some coefficients varies slightly. The largest deviation from our entropy balanced results is a reduction in significance in the state ownership dummies in Table 3, likely due to variance inflation from the small number of state-owned firms in each category.

DISCUSSION AND CONCLUSION

Research Implications

Cuervo-Cazurra et al. (2014) argue that in addition to its inherent interest, examining state-owned multinationals can enrich international-business research. Our approach does so by incorporating insights from accounting, finance and political science. We expand the literature on state ownership beyond Chinese MOEs (e.g., Liang. Ren & Sun, 2014; Meyer et al., 2014), in terms of both ownership and geography. While we find state ownership has a significant negative effect on MNE disclosure, our results highlight the importance of understanding ownership heterogeneity among SOEs; MOEs are far more transparent than their fully state-owned counterparts. Yet, results among majority- and minority-state-owned MOEs are similar, suggesting that it is private corporate governance mechanisms, and not extent of private ownership, that mitigates the negative effects of the state on transparency. These results echo Gupta (2005), who finds that partially privatized Indian SOEs saw a significant increase in performance when subjected to the disciplining effects of the market, despite control remaining in the hands of the state.

Meyer et al. (2014) raise the question of whether home-country institutions play a role in state-owned MNE strategy. The geographic scope of our sample, which includes ample variation in institutions across home countries, allows us to provide a preliminary answer. Analyzing the systems of accountability that exist for the SOE's principal stakeholder, the home government, we show that wholly-owned SOEs from better-governed countries pursue more transparent disclosure strategies.

We also build on Meyer et al. (2014)'s theory regarding SOE reaction to host country institutions. The authors argue that better host-country institutions create legitimacy hurdles for state sponsored FDI. This would suggest that SOEs face less pressure to disclose in institutionally weak environments, and greater expectations of transparency when institutions are strong; therefore, SOE disclosure should be more sensitive than private firm disclosure to institutional quality. In contrast, we theorize about the potential advantages of state ownership in poorly governed host countries, and come to contrary conclusions. Our results demonstrate that SOE disclosures are less sensitive to certain host-country institutional risks than those of private firms, resulting in increased transparency relative to private firms.

Lastly, we advance the literature in IB on MNE-host country bargaining (Vernon, 1971). We find that MNEs are less transparent in the presence of a host-country SOE when investments are complex. This supports our proposition that host governments leverage SOE capabilities to better understand technological complexity. As a host-government's capacity to process and act on information about FDI improves, inward FDI becomes more opaque. While IB theory has long acknowledged how information-processing advantages benefit firms (Egelhoff, 1982), and the capacity for government decision makers to utilize information when formulating government interventions (Makhija, 1993), the potential for governments to exploit the information benefits of state-owned firms has gone largely unexamined.

Limitations and Future Research

Our empirical setting provides limitations as well as advantages. In the absence of price and reserve information, we cannot test whether managers are more likely to disclose investments that they believe more favorable. Nor can we control for firm operating or financial characteristics; there are no consistent sources of data for unlisted firms, whether state-owned or privately-held. While asset homogeneity, the prevalence of state ownership, and global scope make the petroleum industry a propitious setting for examining SOE transparency, issues regarding generalizability arise.

Another shortcoming, as with all disclosure data, is that we are unable to observe whether the buyer reveals information privately to external stakeholders – in our setting, the host-country government. We do not believe this poses problems here, as private communication of information should bias our results against finding statistical significance.

In answering some questions, our findings raise others, suggesting avenues for future research. For example, how effective are disclosure strategies? Do investors prefer, and hence value, minimal disclosure when opacity is a strategic response to political risk? Future research could also examine expropriation incidents, democratic elections, or other sources of political uncertainty to understand if and how they relate to investment transparency.

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ONLINE APPENDICES

These online appendices supplement the article, "State Ownership & Transparency in Foreign Direct Investment". They include additional details on the data, methods, and robustness tests, including:

Appendix 1
Countries Represented in Sample

Country Name	Transactions in which Country is a…		Country Name	Transactions in which Country is a…	
	Home	Host		Home	Host
Albania		2	Kuwait	3	
Algeria		9	Libya		12
Angola		5	Luxembourg	2	
Argentina	2	18	Malaysia	15	
Australia	58	31	Mexico		1
Austria	9		Mongolia		9
Azerbaijan		8	Netherlands	17	13
Bangladesh		3	New Zealand	2	11
Bolivia		4	Nigeria	1	12
Brazil	4	15	Norway	20	33
Burma	1		Oman		6
Cameroon		2	Pakistan		6
Canada	209	82	Papua New Guinea	2	6
Cayman Islands	2		Peru		7
Chile	2		Philippines		7
China	33	18	Poland	6	
Colombia	1	44	Qatar		6
Cote d Ivoire		4	Russia	22	57
Cuba		1	Singapore	11	
Democratic Republic of the Congo		11	South Africa	4	
Denmark	2	6	South Korea	22	
Ecuador		11	Spain	20	2
Egypt		23	Sudan		2
Equatorial Guinea		4	Sweden	11	
Finland	1		Switzerland	2	
France	32	6	Syria		7
Gabon		10	Taiwan	1	
Georgia		4	Tanzania	1	
Germany	13		Thailand	8	8
Ghana		4	Trinidad and Tobago		8
Guatemala		6	Tunisia		9
Hungary	4		Turkey		3
India	10	12	Uganda		6
Indonesia	3	33	Ukraine	1	23
Iran	1		United Arab Emirates	9	
Iraq		8	United Kingdom	145	65
Ireland	6	6	United States	193	174
Israel	2	1	Venezuela		16
Italy	13	12	Vietnam	1	9
Japan	38	2	Yemen		2
Kazakhstan		40	Total	965	965

Appendix 2: Multinomial Logistic Regression Specification

Our dependent variable - *investment transparency* - is categorical with the following 3 outcomes:

$$Investment\ Transparency = \ y = \begin{cases} = 0 & Minimal\ Disclosure \\ = 1 & Partial\ Disclosure \\ = 2 & Full\ Disclosure \end{cases} \tag{1}$$

Accordingly, we model the choice to disclose using multinomial logistic regression. To determine the likelihood of investment disclosure, we define P_{iy} as the probability that disclosure alternative *y* will be chosen from the set described in (1) for the *i*th investment. P_{iy} is specified by establishing one of the *y*'s as a baseline case, and estimating the parameters of the other alternatives. The specification of the other probabilities is

$$P_{iy} = \frac{e^{(x_{iy}\ B_y)}}{1 + \sum_j e^{(x_{jy}\ B_y)}} \tag{2}$$

where x_{iy} is a vector of explanatory variables that includes state ownership, home and host country moderating institutions (Home Country Governance, Host Country Political Risk), Host Country SOE Presence, investment complexity, and controls (US Listing Dummy, Home Country Oil Dependence, Home Country Common Law Dummy, Oil Price).

The MNL coefficient, $\boldsymbol{B_y}$, is thus the expected amount of change in the multinomial log-odds of experiencing a particular disclosure outcome, *y*, relative to the baseline, for each one unit change in the predictor, *x*.

The MNL model relies on a strong logical property, the independence of irrelevant alternatives assumption (IIA). The literature identifies two approaches to address the potential for violations of the IIA assumption: the Hausman-McFadden test and the Small-Hsaio test. The former is inappropriate in this context, as it is not designed to deal with robust clustered standard errors. Thus, we employ the Small-Hsaio test. The results of this test fail to reject the null-hypothesis that the disclosure choice alternatives in the model are independent, which supports the tenability of the IIA assumption.

Appendix 3

Percentiles and Summary Statistics for Moderating Variables

Home Country Governance					Host Country Political Risk				
Percentiles		Summary Statistics			Percentiles		Summary Statistics		
1%	-4.478	Obs	965		1%	0.133	Obs	965	
10%	1.970				10%	0.139			
20%	6.669	Mean	7.273		20%	0.147	Mean	0.446	
30%	7.391	Std. Dev.	3.795		30%	0.213	Std. Dev.	0.329	
40%	7.867				40%	0.244			
50%	8.721	Variance	14.400		50%	0.265	Variance	0.108	
60%	9.136	Skewness	-1.969		60%	0.317	Skewness	0.706	
70%	9.497	Kurtosis	6.091		70%	0.629	Kurtosis	1.834	
80%	9.699				80%	0.884			
90%	9.983	Minimum	-9.945		90%	1.000	Minimum	0.133	
99%	11.012	Maximum	11.753		99%	1.000	Maximum	1.000	

Appendix 4: Regression Results with MNL Coefficients

As discussed in the description of our dependent variable, managers choose between Full Disclosure, Partial Disclosure, or Minimal Disclosure. Thus, we test our hypotheses using a multinomial logit (MNL) framework. Like traditional logistic regression, the MNL model examines the likelihood of a particular outcome from a set of discrete choices (McFadden, 1974). MNL models have been successfully employed in international business (Kogut & Singh, 1988; Nadkarni & Perez, 2007; Doh, Bunyaratavej & Hahn, 2009) and strategy (Damaraju, Barney & Makhija, 2014). A detailed description of the MNL specification can be found in Appendix 2.

The following tables replicate Table 4 and Table 5, presenting both the MNL coefficient and marginal-effects estimate for each disclosure choice (six columns in total). Only marginal effects columns are numbered to correspond with tabulate results in the print version of the paper. The MNL coefficient represents the change in the log-odds of a disclosure choice, relative to the indicated alternative, for a one-unit increase in the independent variable.   The marginal effect represents the change in probability of a particular disclosure choice for a one-unit increase in the independent variable.

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Table 4
MNL Regressions: Marginal Effects of State Ownership on Outward FDI Transparency

				State Ownership Threshold		
				Wholly-owned		
	Partial v.	Full v.	Full v.	Minimal	Partial	Full
Panel A	Minimal	Minimal	Partial	(1)	(2)	(3)
Hypothesized Effects						
Buyer State Ownership	1.068	-4.349*	-5.417**	0.023	0.116	-0.139***
	(0.757)	(1.756)	(1.968)	(0.075)	(0.092)	(0.038)
Buyer State Ownership	-0.062	0.241*	0.303*			
X Home Country Governance	(0.090)	(0.108)	(0.130)		See Panel B	
Buyer State Ownership	-1.162	2.298*	3.459**		for marginal effects	
X Host Country Political Risk	(0.857)	(1.088)	(1.139)			
Controls						
Home Country Governance	-0.002	0.029	0.031	0.000	-0.005	0.005
	(0.026)	(0.031)	(0.027)	(0.007)	(0.006)	(0.003)
Host Country Political Risk	-0.122	0.116	0.238	0.060	-0.093	0.033
	(0.487)	(0.387)	(0.503)	(0.078)	(0.080)	(0.042)
Home Country Oil Dependence	-0.037*	-0.014	0.023+	0.007+	-0.007*	-0.000
	(0.017)	(0.016)	(0.012)	(0.004)	(0.003)	(0.001)
Home Country Common Law	-0.041	0.042	0.083	0.003	-0.010	0.007
	(0.349)	(0.313)	(0.303)	(0.070)	(0.062)	(0.032)
Listed on US Exchange	0.200	0.641	0.441	-0.082	0.007	0.074+
	(0.456)	(0.402)	(0.359)	(0.091)	(0.079)	(0.043)
Complex Reserve Dummy	-0.776**	-0.922*	-0.147	0.193***	-0.116+	-0.077
	(0.267)	(0.422)	(0.568)	(0.042)	(0.063)	(0.052)
Oil Price (12-month strip)	0.542	0.594*	0.052	-0.128*	0.082	0.047
	(0.378)	(0.276)	(0.449)	(0.060)	(0.076)	(0.036)
Observations	965			965		
Pseudo R-squared	0.074			0.074		

Panel B		Wholly-owned	
Marginal Effects of Interactions	Minimal	Partial	Full
Value of Home Country Governance			
Home Country Governance = 0	-0.001	0.161 †	-0.160 ***
Home Country Governance = Mean - 1 SD	0.043	0.111	-0.153 ***
Home Country Governance = Mean	0.064	0.050	-0.113 †
Home Country Governance = Mean + 1 SD	0.037	-0.019	-0.018
Home Country Governance = 15	-0.057	-0.096	0.153
Value of Host Country Political Risk			
Host Country Political Risk = 0	-1.052	0.269 †	-0.164 ***
Host Country Political Risk = Mean - 1 SD	-0.072	0.235 †	-0.163 ***
Host Country Political Risk = Mean	0.018	0.129	-0.148 ***
Host Country Political Risk = Mean +1 SD	0.066	0.052	-0.118 **
Host Country Political Risk = 1	0.084	-0.008	-0.076

Robust standard errors in parentheses
†,*,**,*** Significant at 10%, 5%, 1%, and .1%, respectively

Table 4 Continued
MNL Regressions: Marginal Effects of State Ownership on Outward FDI Transparency

				State Ownership Threshold		
				Wholly-owned + Majority-owned		
Panel A	Partial v. Minimal	Full v. Minimal	Full v. Partial	Minimal (4)	Partial (5)	Full (6)
Hypothesized Effects						
Buyer State Ownership	1.123+	-0.076	-1.199+	-0.057	0.121	-0.064
	(0.609)	(0.668)	(0.726)	(0.069)	(0.074)	(0.041)
Buyer State Ownership	0.079	0.058	-0.020			
X Home Country Governance	(0.073)	(0.083)	(0.056)		See Panel B	
Buyer State Ownership	-1.543*	-0.754	0.790		for marginal effects	
X Host Country Political Risk	(0.777)	(0.669)	(0.922)			
Controls						
Home Country Governance	-0.041	0.013	0.054	-0.002	-0.003	0.004
	(0.027)	(0.047)	(0.037)	(0.006)	(0.005)	(0.003)
Host Country Political Risk	0.406	0.378	-0.027	0.038	-0.063	0.024
	(0.571)	(0.460)	(0.595)	(0.077)	(0.075)	(0.039)
Home Country Oil Dependence	-0.051**	-0.016	0.036*	0.009**	-0.009**	0.001
	(0.018)	(0.016)	(0.017)	(0.003)	(0.003)	(0.002)
Home Country Common Law	0.034	-0.006	-0.040	-0.005	0.007	-0.002
	(0.362)	(0.360)	(0.406)	(0.069)	(0.068)	(0.041)
Listed on US Exchange	0.099	0.874*	0.775+	-0.090	-0.030	0.120*
	(0.498)	(0.357)	(0.447)	(0.086)	(0.088)	(0.050)
Complex Reserve Dummy	-0.772**	-0.812*	-0.039	0.180***	-0.116+	-0.064
	(0.263)	(0.392)	(0.549)	(0.037)	(0.063)	(0.051)
Oil Price (12-month strip)	0.594	0.638*	0.044	-0.137*	0.087	0.050
	(0.406)	(0.296)	(0.503)	(0.060)	(0.080)	(0.041)
Observations	965			965		
Pseudo R-squared	0.068			0.068		

Panel B		Wholly-owned + Majority-owned		
Marginal Effects of Interactions	Marginal Effects	Minimal	Partial	Full
Value of Home Country Governance				
Home Country Governance = 0		-0.017	0.085	-0.068
Home Country Governance = Mean - 1 SD		-0.069	0.133	-0.064
Home Country Governance = Mean		-0.122	0.180 †	-0.058
Home Country Governance = Mean + 1 SD		-0.173	0.222	-0.049
Home Country Governance = 15		-0.227	0.263	-0.036
Value of Host Country Political Risk				
Host Country Political Risk = 0		-0.225 *	0.282 *	-0.059
Host Country Political Risk = Mean - 1 SD		-0.185 *	0.244 *	-0.059
Host Country Political Risk = Mean		-0.070	0.132 †	-0.063
Host Country Political Risk = Mean +1 SD		0.014	0.053	-0.067
Host Country Political Risk = 1		0.081	-0.008	-0.072

Robust standard errors in parentheses
†,*,**,*** Significant at 10%, 5%, 1%, and .1%, respectively

Table 4 Continued
MNL Regressions: Marginal Effects of State Ownership on Outward FDI Transparency

			State Ownership Threshold			
			Wholly-owned + Majority-owned + Minority-owned			
	Partial v.	Full v.	Full v.	Minimal	Partial	Full
Panel A	Minimal	Minimal	Partial	(7)	(8)	(8)
Hypothesized Effects						
Buyer State Ownership	0.738	-1.089	-1.827**	-0.023	0.089	-0.067
	(0.615)	(0.694)	(0.680)	(0.060)	(0.058)	(0.047)
Buyer State Ownership	0.077	0.088	0.011			
X Home Country Governance	(0.065)	(0.087)	(0.051)		See Panel B	
Buyer State Ownership	-1.076+	0.744	1.820*		for marginal effects	
X Host Country Political Risk	(0.652)	(0.762)	(0.808)			
Controls						
Home Country Governance	-0.058	-0.006	0.053	-0.001	-0.004	0.005+
	(0.037)	(0.059)	(0.041)	(0.006)	(0.005)	(0.003)
Host Country Political Risk	0.316	-0.213	-0.529	0.047	-0.077	0.029
	(0.504)	(0.553)	(0.626)	(0.085)	(0.079)	(0.038)
Home Country Oil Dependence	-0.046**	-0.018	0.028+	0.008*	-0.008**	-0.000
	(0.017)	(0.016)	(0.015)	(0.003)	(0.003)	(0.002)
Home Country Common Law	0.184	-0.014	-0.199	-0.027	0.038	-0.010
	(0.389)	(0.410)	(0.483)	(0.074)	(0.076)	(0.047)
Listed on US Exchange	0.063	0.957*	0.894+	-0.094	-0.041	0.136**
	(0.512)	(0.382)	(0.457)	(0.089)	(0.088)	(0.052)
Complex Reserve Dummy	-0.770**	-0.761+	0.009	0.178***	-0.120+	-0.058
	(0.297)	(0.393)	(0.584)	(0.041)	(0.071)	(0.053)
Oil Price (12-month strip)	0.592	0.636*	0.044	-0.138*	0.088	0.050
	(0.399)	(0.279)	(0.482)	(0.060)	(0.078)	(0.038)
Observations	965			965		
Pseudo R-squared	0.065			0.065		

			Wholly-owned + Majority-owned + Minority-owned		
Panel B					
Marginal Effects of Interactions	arginal Effects		Minimal	Partial	Full
Value of Home Country Governance					
Home Country Governance = 0			0.020	0.062	-0.083
Home Country Governance = Mean - 1 SD			-0.036	0.102 †	-0.066
Home Country Governance = Mean			-0.097	0.137 †	-0.041
Home Country Governance = Mean + 1 SD			-0.157	0.166 †	-0.008
Home Country Governance = 15			-0.223	0.188	0.036
Value of Host Country Political Risk					
Host Country Political Risk = 0			0.094	0.233 *	-0.139 *
Host Country Political Risk = Mean - 1 SD			-0.077	0.200 *	-0.123 *
Host Country Political Risk = Mean			-0.028	0.102 †	-0.074
Host Country Political Risk = Mean +1 SD			0.003	0.031	-0.035
Host Country Political Risk = 1			0.025	-0.025	-0.001

Robust standard errors in parentheses
†,*,**,*** Significant at 10%, 5%, 1%, and .1%, respectively

Table 5
MNL Regressions: Marginal Effects of Investment Transparency on Presence of Host Country SOE

Panel A	Partial v. Minimal Minimal	Full v. Minimal Minimal	Full v. Partial Partial	Minimal (1)	Partial (2)	Full (3)	Partial v. Minimal Minimal	Full v. Minimal Minimal	Full v. Partial Partial	Minimal (4)	Partial (5)	Full (6)
Variables												
Hypothesized Effects												
Host Country SOE Presence	-0.173	-0.239	-0.066	0.047	-0.017	-0.030	0.201	0.163	-0.038	0.038	-0.012	-0.026
	(0.216)	(0.282)	(0.177)	(0.054)	(0.028)	(0.038)	(0.276)	(0.385)	(0.191)	(0.054)	(0.027)	(0.038)
Host Country SOE Presence X Complex Reserve							-0.672**	-0.751*	-0.079	See Panel B for marginal effects		
							(0.229)	(0.377)	(0.317)			
Controls												
Complex Reserve	-0.475***	-0.561*	-0.086	0.121***	-0.053*	-0.068+	-0.089	-0.140	-0.051	0.121***	-0.053*	-0.068+
	(0.103)	(0.255)	(0.286)	(0.030)	(0.022)	(0.040)	(0.160)	(0.337)	(0.317)	(0.028)	(0.023)	(0.038)
Buyer Wholly-owned SOE	0.510	-1.354	-1.864	0.012	0.156	-0.168**	0.502	-1.367	-1.868	0.014	0.155	-0.169**
	(0.487)	(0.902)	(1.258)	(0.078)	(0.123)	(0.065)	(0.477)	(0.909)	(1.261)	(0.075)	(0.121)	(0.065)
Buyer Majority MOE	0.608	0.541	-0.067	-0.133	0.078	0.055	0.665	0.595	-0.069	-0.144	0.084	0.060
	(0.528)	(0.565)	(0.759)	(0.089)	(0.113)	(0.113)	(0.535)	(0.569)	(0.756)	(0.089)	(0.114)	(0.114)
Buyer Minority MOE	0.441	-0.094	-0.536	-0.049	0.089	-0.040	0.444	-0.098	-0.541	-0.049	0.089	-0.040
	(0.292)	(0.471)	(0.635)	(0.049)	(0.073)	(0.077)	(0.275)	(0.500)	(0.634)	(0.051)	(0.070)	(0.079)
Host Country Political Risk	0.314	0.557***	0.243	-0.100*	0.024	0.075**	0.274	0.522**	0.248	-0.091*	0.019	0.071*
	(0.297)	(0.165)	(0.321)	(0.041)	(0.049)	(0.029)	(0.299)	(0.168)	(0.324)	(0.041)	(0.050)	(0.030)
Home Country Governance	-0.028	0.097*	0.126**	-0.008	-0.010*	0.018**	-0.026	0.099*	0.125**	-0.008	-0.010*	0.018**
	(0.025)	(0.042)	(0.041)	(0.006)	(0.004)	(0.006)	(0.026)	(0.044)	(0.041)	(0.007)	(0.004)	(0.007)
Home Country Oil Dependence	-0.048*	0.002	0.050*	0.005	-0.008*	0.003	-0.048**	0.001	0.049*	0.006+	-0.008**	0.003
	(0.019)	(0.020)	(0.025)	(0.003)	(0.003)	(0.003)	(0.018)	(0.020)	(0.025)	(0.003)	(0.003)	(0.003)
Home Country Common Law	0.100	0.131	0.031	-0.027	0.010	0.016	0.109	0.147	0.038	-0.029	0.011	0.018
	(0.318)	(0.330)	(0.393)	(0.059)	(0.052)	(0.051)	(0.306)	(0.332)	(0.388)	(0.058)	(0.050)	(0.051)
Listed on US Exchange	0.299	0.558	0.259	-0.099	0.019	0.080	0.301	0.557	0.256	-0.099	0.020	0.079
	(0.322)	(0.413)	(0.263)	(0.080)	(0.038)	(0.060)	(0.320)	(0.417)	(0.263)	(0.079)	(0.037)	(0.060)
Oil Price (12-month strip)	0.892***	0.724*	-0.168	-0.187***	0.115***	0.072	0.896***	0.727*	-0.169	-0.187***	0.115***	0.072
	(0.183)	(0.285)	(0.269)	(0.041)	(0.029)	(0.046)	(0.184)	(0.294)	(0.269)	(0.042)	(0.028)	(0.047)
Observations				965						965		
Pseudo R-squared				0.061						0.061		

Panel B				Marginal Effect of Host Country SOE Presence on		
Marginal Effects of Interactions				Minimal	Partial	Full
Value of Complex Reserve Dummy						
Complex Reserve = 0				-0.043	0.026	0.017
Complex Reserve = 1				0.1197**	-0.052	-0.068*

Robust standard errors in parentheses
†,*,**,*** Significant at 10%, 5%, 1%, and .1%, respectively

Appendix 5: Propensity Score Matching

The propensity score represents the probability of an investment by a state-owned firm given the observed covariates, and is estimated using a logistic regression of the relevant covariates on the treatment. Only variables that simultaneously influence the treatment and the outcome should be included (Caliendo and Kopeinig, 2008). Our choice of matching variables is based on the home country characteristics that are likely to influence both transparency and the participation of SOEs in outward FDI. Of the variables identified in our study, we include the following:

$$Covariate\ Vector\ X = \{\ Home\ Country\ Governance, \qquad\qquad (1)$$
$$Home\ Country\ Common\ Law\ Dummy\ \ \}$$

We include Home Country Governance because private enterprises often face challenges in countries with weak governance institutions and poorly functioning markets, increasing the likelihood of state ownership. Further, common law countries tend to have greater protections for private ownership and more robust equity markets, reducing the need for state intervention in the economy (La Porta, Lopez-de-Silanes, Shleifer and Vishny, 1997). As the state plays a more restrained role in economic affairs in common law countries compared to civil law and former communist countries, the likelihood of buyers from these countries being state-owned is reduced.

The next step is to specify a matching algorithm with which to match transactions by SOEs with a counterfactual set of transactions from non-state-owned firms based on the propensity score. As it is highly unlikely to find two groups with exactly the same propensity score, the challenge in matching on observables is to find private firms whose propensity scores are "close enough" to those of state-owned firms. The matching process takes observations in the

treatment sample and matches them with observations in the control sample such that the

distance between observations in minimized, i.e.:

$$C(P_i) = \min_j |P_i - Pj| \tag{2}$$

where *C(Pi)* represents a set of POE control units matched with SOE investment *i*. We

choose to match to multiple partners with replacement, as this improves the average quality of

the matching and decreases bias (this is particularly valuable when the distributions of the

treatment and control sample are different, as is the case with our sample. The cost of

replacement is an increase in variance (Caliendo & Kopeinig, 2008).

To account for this increase, we "oversample" by matching to at least three nearest

neighbors. This improves the quality of the counterfactual created by reducing variance, at the

expense of potentially increasing bias from poorer matches. To mitigate this potential for bias,

we only allow for matches within a specific caliper. That is, the propensity scores are required to

be similar within a certain predetermined distance, η, such that:

$$C(P_i) < \eta \tag{3}$$

While there is no set standard for caliper size in the propensity score literature, one standard

deviation of the distribution of propensity scores is often considered conservative (Caliendo &

Kopeinig, 2008). In our sample, this results in a caliper, η, of 0.045.

Results of Propensity Score Matching for Outward FDI Transparency

Table A1 presents a bivariate look at the average treatment effect of state ownership on

the likelihood of outward FDI disclosures for the matched sample. Here, we examine separately

Full Disclosure (the release of both the transaction price and the quantity of the reserves

purchased, and Partial Disclosure (the release of only price or quantity, but not both). In both samples, the average treatment effect on the likelihood of Full Disclosure is negative and highly significant for both samples. These findings are consistent with our base assertion that state ownership has a detrimental effect on transparency.

Table A1 Panel B describes the sub-sample of the observations which share common support. Propensity score matching relies on a common support (or overlap) assumption, which ensures that transactions with the same set of covariates have a positive probability of being both state-owned and private. We drop 2 of our treatment (state-owned) observations and 65 of our control (private) observations because they are off support. After matching treatment and control observations with replacement (oversampling and limiting matches within our .045 caliper), we are left with 153 treatment observations matched with 184 unique control observations.

Tables A2, A3 & A4 present the results of our multinomial logistic (MNL) regressions using our propensity score matched sample. Figures A1 and A2 represent our interactions graphically. In our MNL regressions, the largest deviation from our entropy balanced results is a reduction in significance in the state-ownership dummies in Table 3. We believe this is likely due to variance inflation and the small number of state-owned firms in each category. We also note that the results for our interaction effects appear more significant in our propensity score matching sample than our entropy balanced sample.

Table A1 - Matching Appendix

Propensity Score Matching Estimates for Average Treatment Effect of State Ownership

Panel A	Propensity Score Matching
	Oversampling + Caliper (0.045)
Partial Dislcosure	
Average Treatment Effect	0.128
Abedie Imbens Robust SE	(0.219)
Full Dislcosure	
Average Treatment Effect	-0.189***
Abedie Imbens Robust SE	(0.019)

Panel B		
Common Support	Treatment	Control
Off Support	2	65
On Support	153	745
Unique matched observations	153	184

Table A2 - Matching Appendix

MNL Regressions: Effects of State Ownership on Outward FDI Transparency

Variables	MNL Coefficient			Marginal Effects		
	Partial v. Minimal	Full v. Minimal	Full v. Partial	Minimal	Partial	Full
Hypothesized Effects						
Buyer Private	0.175	1.669	1.493	-0.152+	-0.045	0.197
	(0.306)	(1.018)	(1.142)	(0.079)	(0.097)	(0.137)
Buyer Minority MOE	0.273	1.331	1.058	-0.143	-0.007	0.151
	(0.519)	(0.956)	(1.213)	(0.093)	(0.135)	(0.129)
Buyer Majority MOE	-0.042	1.609	1.651	-0.113	-0.088	0.200
	(0.481)	(1.307)	(1.466)	(0.108)	(0.129)	(0.167)
Controls						
Home Country Governance	-0.066	0.000	0.066	0.011	-0.014	0.003
	(0.049)	(0.039)	(0.060)	(0.009)	(0.010)	(0.005)
Home Country Oil Dependence	-0.055**	0.005	0.060**	0.009*	-0.012**	0.003
	(0.022)	(0.022)	(0.029)	(0.004)	(0.005)	(0.003)
Home Country Common Law	0.675*	-0.503	-1.178**	-0.072	0.167**	-0.095
	(0.400)	(0.642)	(0.502)	(0.096)	(0.063)	(0.066)
Listed on US Exchange	-0.160	0.498	0.658	-0.011	-0.058	0.069
	(0.535)	(0.515)	(0.488)	(0.116)	(0.099)	(0.054)
Host Country Political Risk	-0.434	-0.376	0.058	0.098	-0.073	-0.025
	(0.521)	(0.543)	(0.682)	(0.100)	(0.110)	(0.069)
Complex Reserve Dummy	-0.589	-0.069	0.520	0.101+	-0.121	0.020
	(0.363)	(0.478)	(0.708)	(0.056)	(0.088)	(0.067)
Oil Price (12-month strip)	0.544	0.838*	0.294	-0.150*	0.074	0.077
	(0.357)	(0.447)	(0.467)	(0.074)	(0.068)	(0.055)
Observations	337					
Pseudo R-squared	0.066					

Robust standard errors in parentheses

*** p<0.001, ** p<0.01, * p<0.05, + p<0.1

Table A3 - Matching Appendix

MNL Regressions: Effects of State Ownership on Outward FDI Transparency

	State Ownership Threshold																	
	Wholly-owned						Wholly-owned + Majority-owned						Wholly-owned + Majority-owned + Minority-owned					
	MNL Coefficient			Marginal Effects			MNL Coefficient			Marginal Effects			MNL Coefficient			Marginal Effects		
Variables	Partial v. Minimal	Full v. Minimal	Full v. Partial	Minimal	Partial	Full	Partial v. Minimal	Full v. Minimal	Full v. Partial	Minimal	Partial	Full	Partial v. Minimal	Full v. Minimal	Full v. Partial	Minimal	Partial	Full
Hypothesized Effects																		
Buyer State Ownership	0.809	-2.661+	-3.470*	0.106+	0.009	-0.115+	0.153	-0.822	-0.975	0.039	0.016	-0.055	-0.086	-1.912*	-1.826+	0.050	0.014	-0.064
	(0.542)	(1.446)	(1.618)	(0.059)	(0.068)	(0.062)	(0.521)	(0.916)	(1.061)	(0.068)	(0.087)	(0.057)	(0.505)	(0.965)	(1.043)	(0.045)	(0.062)	(0.067)
Buyer State Ownership	-0.107	0.167+	0.274*				0.103	0.051	-0.052				0.112**	0.087	-0.025			
X Home Country Governance	(0.084)	(0.101)	(0.118)		See Table 5		(0.069)	(0.088)	(0.101)		See Table 5		(0.043)	(0.093)	(0.105)		See Table 5	
Buyer State Ownership	-1.359*	0.949	2.308*		for marginal effects		-0.859	0.339	1.198		for marginal effects		-0.499	2.028+	2.527*		for marginal effects	
X Host Country Political Risk	(0.665)	(0.939)	(1.119)				(0.699)	(0.949)	(1.124)				(0.703)	(1.114)	(1.127)			
Controls																		
Home Country Governance	-0.044	-0.003	0.042	0.011	-0.014+	0.003	-0.097**	-0.022	0.075	0.010	-0.012	0.002	-0.114**	-0.042	0.072	0.009	-0.012	0.003
	(0.036)	(0.041)	(0.048)	(0.007)	(0.008)	(0.005)	(0.035)	(0.059)	(0.079)	(0.008)	(0.009)	(0.005)	(0.039)	(0.067)	(0.088)	(0.007)	(0.008)	(0.005)
Host Country Political Risk	-0.187	-0.333	-0.147	0.105	-0.082	-0.023	-0.029	-0.406	-0.377	0.079	-0.052	-0.027	-0.143	-1.197	-1.054	0.090	-0.065	-0.025
	(0.571)	(0.583)	(0.746)	(0.095)	(0.105)	(0.070)	(0.649)	(0.756)	(0.898)	(0.099)	(0.107)	(0.070)	(0.677)	(0.906)	(1.018)	(0.096)	(0.107)	(0.063)
Home Country Oil Dependence	-0.056**	0.009	0.065**	0.008*	-0.012**	0.004+	-0.065**	0.013	0.077**	0.009*	-0.014**	0.005*	-0.061**	0.012	0.073**	0.009*	-0.013**	0.004*
	(0.020)	(0.019)	(0.024)	(0.004)	(0.004)	(0.002)	(0.023)	(0.020)	(0.028)	(0.004)	(0.005)	(0.002)	(0.022)	(0.020)	(0.025)	(0.004)	(0.005)	(0.002)
Home Country Common Law	0.668+	-0.531	-1.199*	-0.085	0.171*	-0.085+	0.669+	-0.605	-1.274*	-0.080	0.173*	-0.093*	0.699+	-0.557	-1.256*	-0.088	0.176*	-0.088*
	(0.365)	(0.653)	(0.561)	(0.081)	(0.069)	(0.048)	(0.391)	(0.608)	(0.544)	(0.083)	(0.076)	(0.045)	(0.389)	(0.628)	(0.535)	(0.084)	(0.074)	(0.045)
Listed on US Exchange	-0.113	0.451	0.564	-0.021	-0.047	0.068	-0.081	0.653+	0.734	-0.046	-0.053	0.099+	-0.081	0.827*	0.908+	-0.062	-0.063	0.126*
	(0.528)	(0.345)	(0.495)	(0.096)	(0.099)	(0.046)	(0.486)	(0.338)	(0.500)	(0.087)	(0.092)	(0.053)	(0.487)	(0.343)	(0.505)	(0.086)	(0.091)	(0.057)
Complex Reserve Dummy	-0.641+	-0.091	0.551	0.110*	-0.130	0.020	-0.504	0.034	0.538	0.078	-0.107	0.029	-0.523	0.011	0.534	0.083	-0.109	0.026
	(0.370)	(0.470)	(0.715)	(0.056)	(0.090)	(0.068)	(0.355)	(0.421)	(0.666)	(0.052)	(0.086)	(0.063)	(0.371)	(0.460)	(0.710)	(0.055)	(0.089)	(0.066)
Oil Price (12-month strip)	0.531	0.831*	0.300	-0.147*	0.071	0.077	0.554	0.909*	0.355	-0.157*	0.070	0.086	0.534	0.941*	0.407	-0.155*	0.066	0.089+
	(0.361)	(0.422)	(0.460)	(0.072)	(0.070)	(0.052)	(0.397)	(0.426)	(0.492)	(0.075)	(0.075)	(0.053)	(0.387)	(0.429)	(0.490)	(0.075)	(0.072)	(0.052)
Observations	337						337						337					
Pseudo R-squared	0.070						0.065						0.073					

Robust standard errors in parentheses

*** p<0.001, ** p<0.01, * p<0.05, + p<0.1

Table A4 - Matching Appendix

Marginal Effects of Interactions

	State Ownership Threshold								
	(1) Wholly-owned			(2) Wholly-owned + Majority-owned			(3) Wholly-owned + Majority-owned + Minority-		
Panel A:	Marginal Effect of State Ownership on Disclosure			Marginal Effect of State Ownership on Disclosure			Marginal Effect of State Ownership on Disclosure		
Value of Home Country Governance	Pr(Minimal)	Pr(Partial)	Pr(Full)	Pr(Minimal)	Pr(Partial)	Pr(Full)	Pr(Minimal)	Pr(Partial)	Pr(Full)
Home Country Governance = 0	0.066	0.079	-0.145 ***	0.096 †	-0.038	-0.058	0.115 *	-0.037	-0.078
Home Country Governance = Mean - 1 SD	0.134 †	-0.009	-0.125 **	0.027	0.032	-0.058	0.033	0.032	-0.065
Home Country Governance = Mean	0.169 †	-0.088	-0.082	-0.045	0.099	-0.055	-0.052	0.097	-0.045
Home Country Governance = Mean + 1 SD	0.149	-0.143	-0.006	-0.112	0.158	-0.047	-0.133	0.150	-0.017
Home Country Governance = 15	0.057	-0.175 †	0.118	-0.179	0.212	-0.033	-0.215 †	0.194	0.021
Panel B:									
Value of Host Country Political Risk									
Host Country Political Risk = 0	-0.020	0.179	-0.159 *	-0.032	0.135	-0.103	0.074	0.140	-0.214 †
Host Country Political Risk = Mean - 1 SD	0.009	0.141	-0.150 *	-0.016	0.107	-0.091	0.068	0.110	-0.178 †
Host Country Political Risk = Mean	0.090	0.027	-0.118 †	0.032	0.026	-0.058	0.048	0.024	-0.072
Host Country Political Risk = Mean +1 SD	0.141	-0.049	-0.092	0.066	-0.030	-0.035	0.030	-0.033	0.002
Host Country Political Risk = 1	0.174	-0.104	-0.070	0.092	-0.073	-0.018	0.013	-0.075	0.062

†,*,**,*** Significant at 10%, 5%, 1%, and .1%, respectively
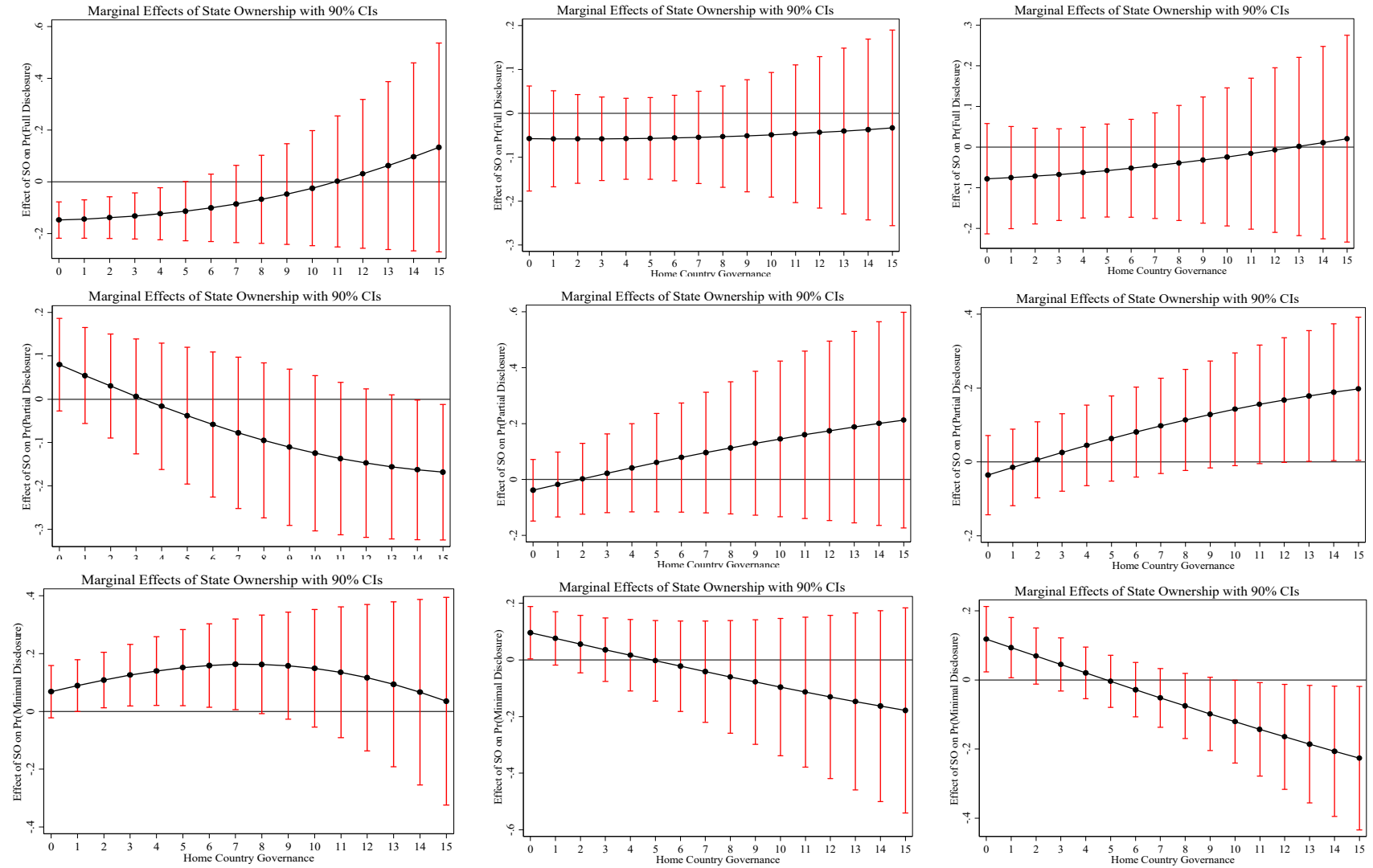
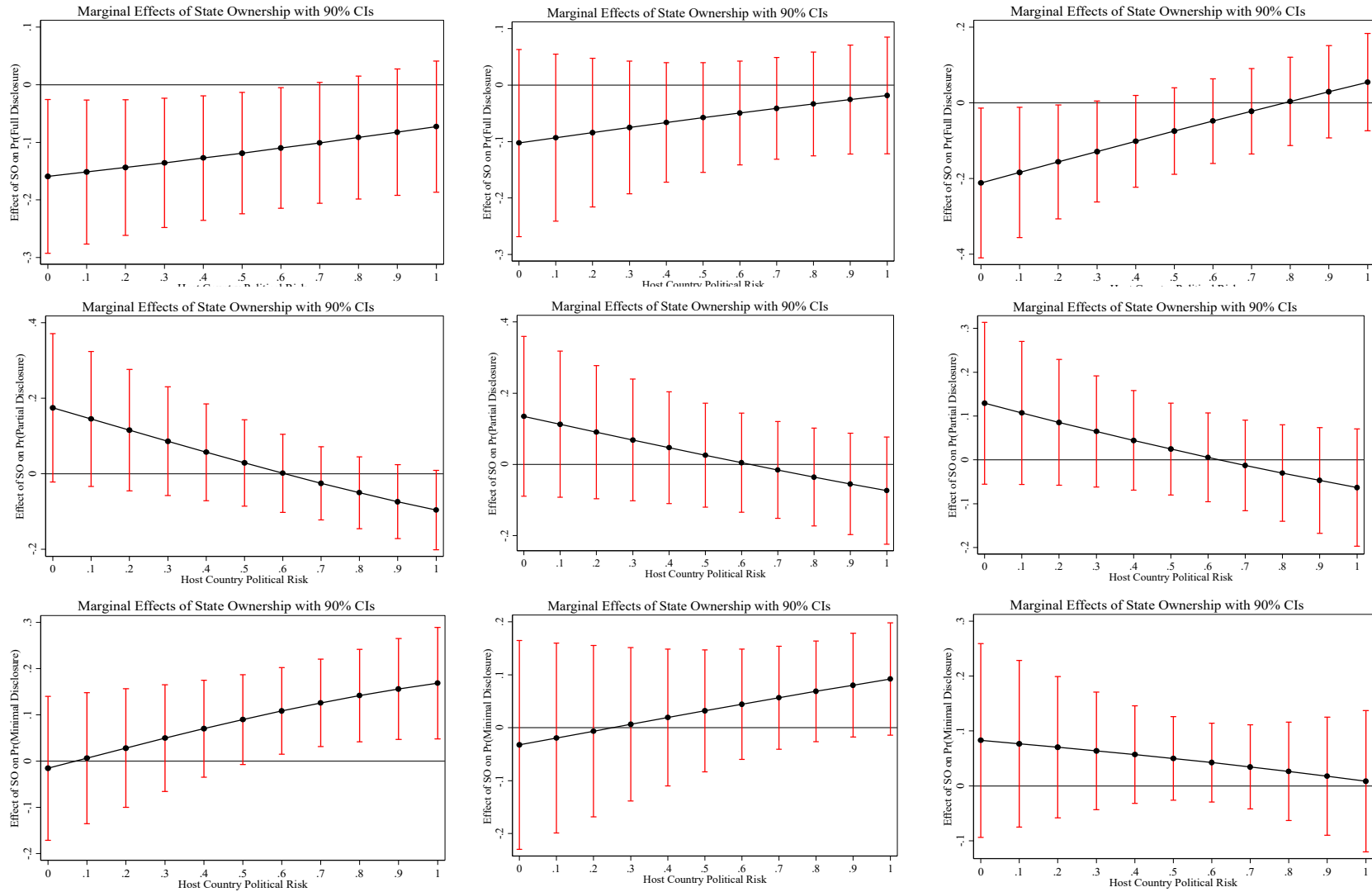**Figure A1 - Matching Appendix**

Figure A2 - Matching Appendix

Appendix 6: Marginal Effects Plots

We follow best practice (Hoetker, 2007) by plotting the interaction effects to aid interpretation. Figures 1 & 2 illustrate the interactions with Home Country Governance and Host Country Political Risk presented in Table 4. Figure 3 illustrates the interaction with Reserve Complexity presented in Table 5.

Figure 1a represents the marginal effects of state ownership on the probability of full disclosure as Home Country Governance increases. Moving left to right, we see at low levels of Home Country Governance, state ownership exerts a negative effect on the probability of full disclosure. However, as Home Country Governance increases, this effect become insignificant from zero. The inverse is observable in Figure 1b, which visualizes the marginal effect of state ownership on the probability of partial disclosure. At low levels of Home Country Governance, Wholly-owned SOEs are more likely to prefer Partial Disclosure. This effect becomes insignificant as Home Country Governance increases.

In Figure 2a & 2d, we see that the significant negative effect of state ownership becomes significantly indistinguishable from zero as Home Country Political Risk increases. Similarly, moving from left to right demonstrates the corresponding shift away from partial disclosure in Figures 2b and 2e.

In Figures 3a, 3b & 3c, the effect of SOE presence on transparency is insignificant when reserves are no complex. Moving from left to the right, we see a significant impact on transparency emerge as reserve become complex. The effect is particularly strong in Figure 3c, which represents the marginal effect on the probability of minimal disclosure. Here, we see that the presence of a host country SOE significantly increases that inward FDI in complex reserves will choose minimal possible disclosure.

Figure 1 - Marginal Effects Appendix
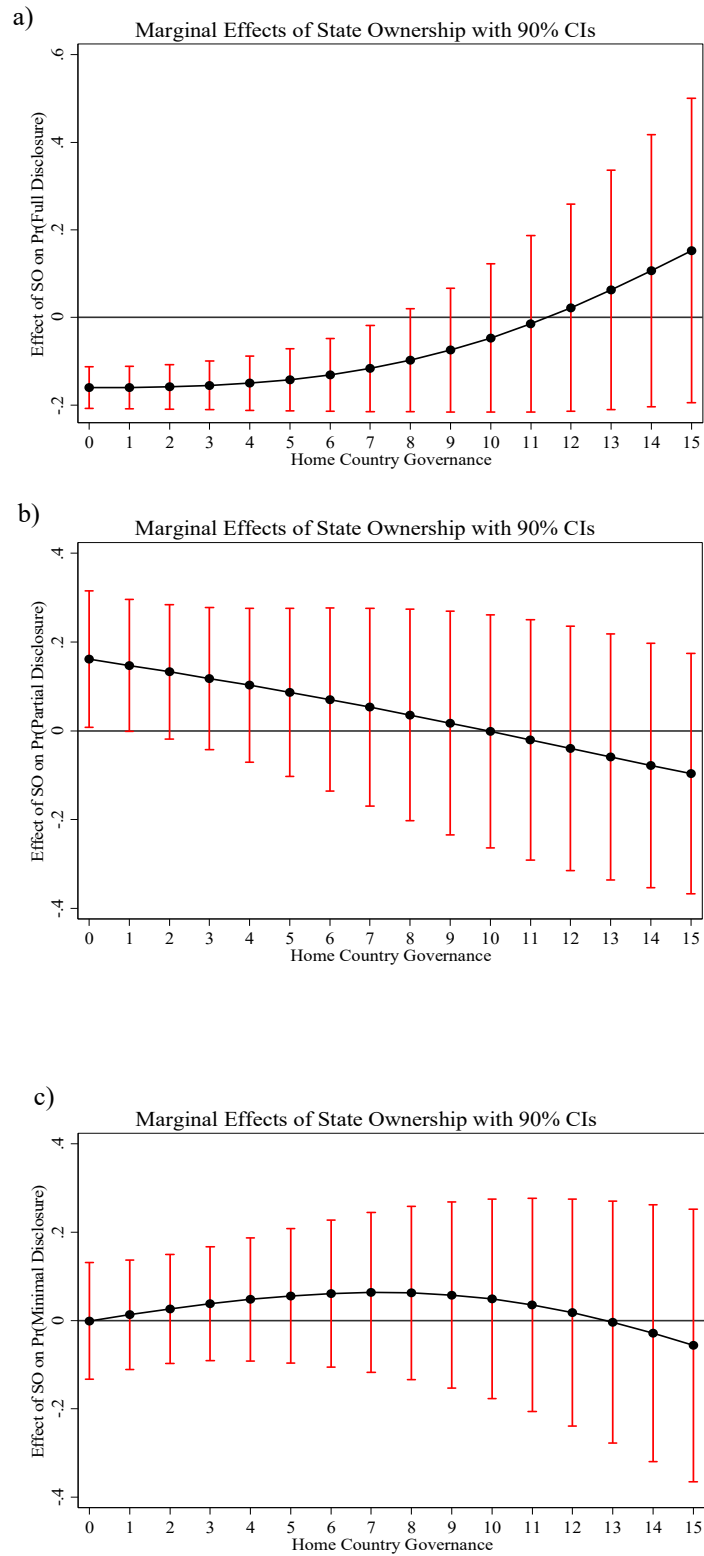
State Ownership Threshold
= Wholly-owned

a)

Marginal Effects of State Ownership with 90% CIs

b)

Marginal Effects of State Ownership with 90% CIs

c)

Marginal Effects of State Ownership with 90% CIs

Figure 2 - Marginal Effects Appendix

State Ownership Threshold

| = Wholly-owned | =Wholly-owned + Majority-owned + Minority-owned |

a)

Marginal Effects of State Ownership with 90% CIs

d)

Marginal Effects of State Ownership with 90% CIs

b)

Marginal Effects of State Ownership with 90% CIs

e)

Marginal Effects of State Ownership with 90% CIs

c)

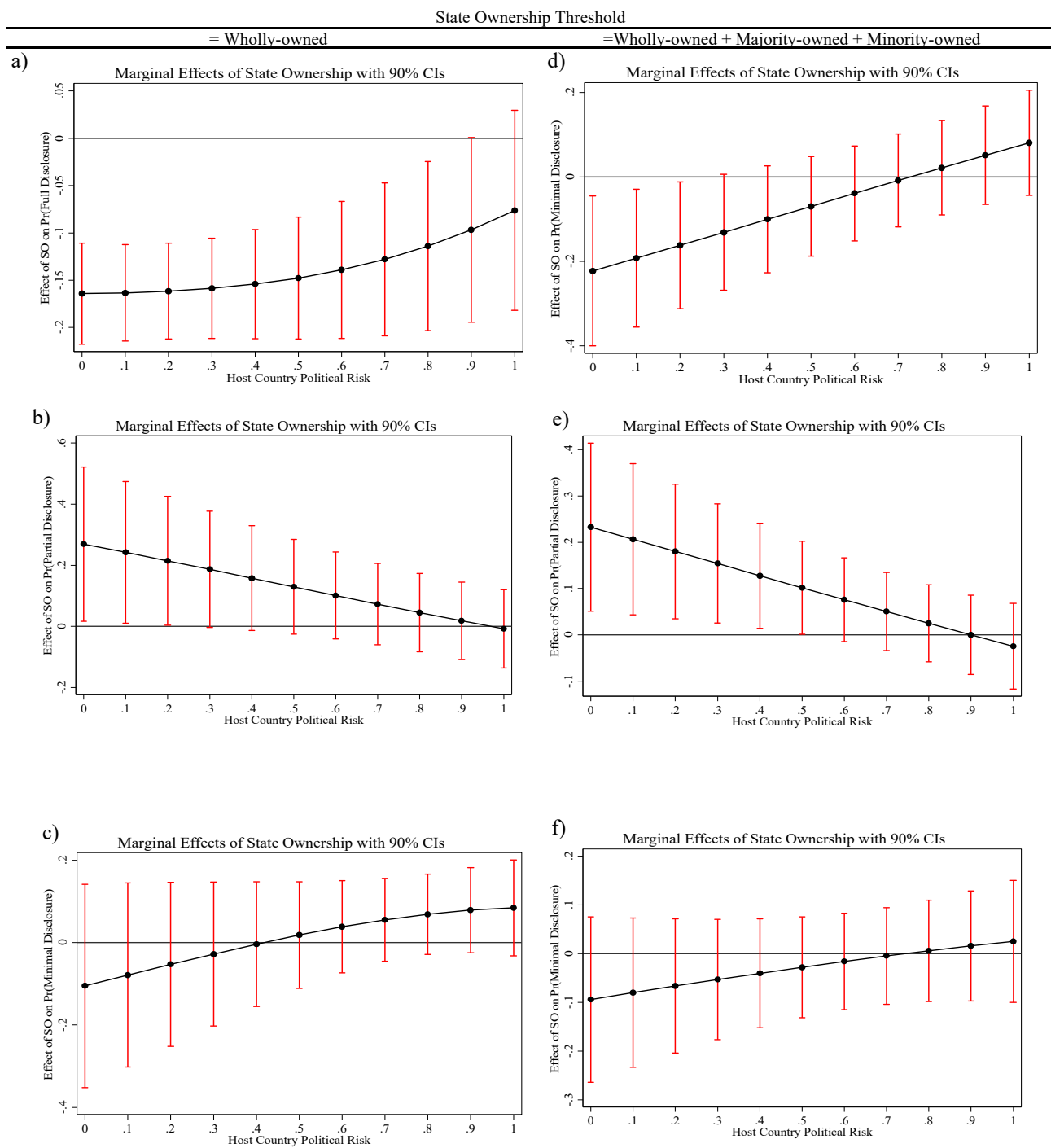Marginal Effects of State Ownership with 90% CIs

f)

Marginal Effects of State Ownership with 90% CIs

Figure 3 - Marginal Effects Appendix

a)

Marginal Effects of Reserve Complexity with 90% CIs

b)

Marginal Effects of Reserve Complexity with 90% CIs

c)

Marginal Effects of Reserve Complexity with 90% CIs